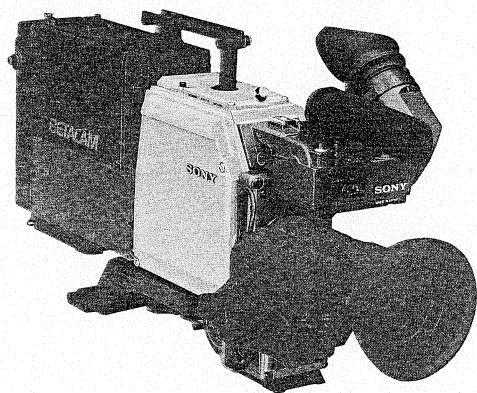


SONY[®]

COLOR VIDEO CAMERA

BVP-30AP



BETACAM[™]

OPERATION AND MAINTENANCE MANUAL

1st Edition (Revised 6)

Serial No. 10001 and Higher

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Components identified by shading and  marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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SECTION 1

OPERATION

The BVP-30AP is a compact and lightweight color video camera with a three-pickup tube system employing 2/3-inch Magnetic focus-Static deflection Plumbicon* tubes. When the BVP-30AP is used together with a BVV-1PS/BVV-1APS portable video cassette recorder, a Betacam system BVW-30AP for ENG (Electronic News Gathering) is created, making it possible for camera recording to be done by a single person.

* PLUMBICON is a registered trademark of N.V. PHILIPS.

1-1. FEATURES

High quality picture

The Magnetic focus-Static deflection tubes have the following features and assure a high quality picture.

- The high resolution can be obtained at any portion on the screen.
- The deflection distortion is low and the precise registration is possible.
- The diode-gun plumbicon ® tubes and the high-voltage operation assure the clear picture.
- The signal is output through the connector pins and the first-stage FET is built-in the coil for the high signal-to-noise ratio.

Compact and lightweight

The magnesium diecast body is light and rigid. The compact design and lightweight makes the BVP-30AP easy-to-operate camera.

High sensitivity

The video output level can be raised by 9 dB or 18 dB. Even at the 18 dB position, a high quality picture is assured so that the recording under low light conditions will be possible.

Automatic white balance and black balance/preset white balance

The white balance and black balance can be automatically adjusted at each filter position, and the adjusted value is stored in the memory even when the power is turned off. When the WHITE BAL switch is set to PRESET, a white balance at 3200°K is obtained.

Automatic centering adjustment

Thanks to the newly developed automatic centering adjusting circuit, the centering can be easily adjusted without using the centering pattern. The adjusted value is stored in the memory even when the power is turned off.

Automatic beam-optimizer

An automatic beam-optimizer allows the camera to accept excessive light input of up to 8 times that of normal conditions without comet tail or blooming effects.

Dynamic beam focus

Use of a dynamic beam focus circuit has improved the resolution around the screen.

Wide dynamic range

The BVP-30AP has realized wide dynamic range to accept excessive light input of up to 6 times that of normal condition with the incorporated DCC (Dynamic Contrast Control) circuit.

Warning system

If there is a problem on the VTR or the tape or the battery is to end, the warning lamps in the viewfinder indicate it. When the BVP-30AP is used together with the BVV-1PS/BVV-1APS, the warning sound is heard and the tape remaining time indicators in the viewfinder will function.

Auto-close mechanism

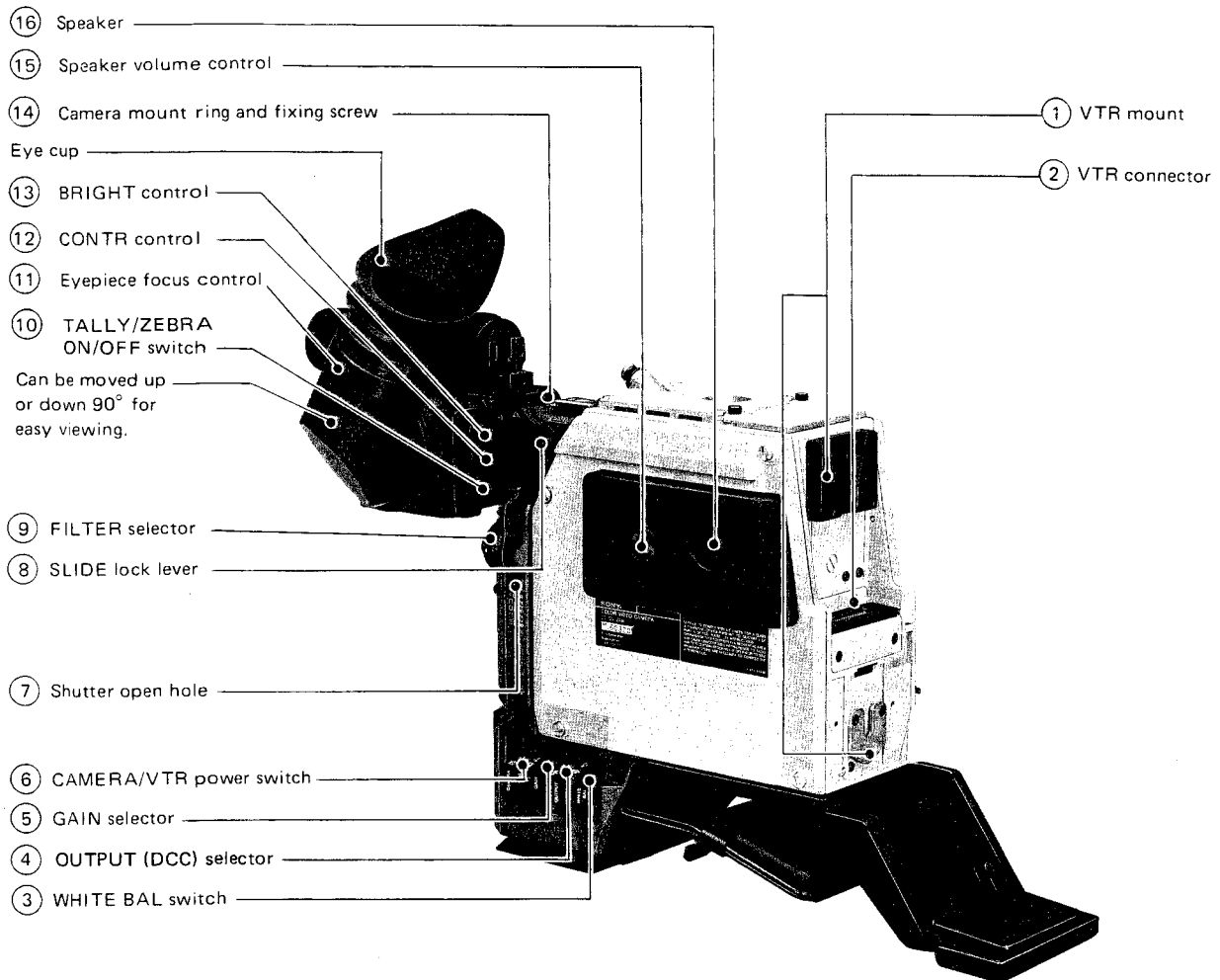
The shutter is automatically closed to protect the pickup tube in the following cases.

- When the CAMERA/VTR switch is set to PREHEAT
- When the OUTPUT switch is set to BARS
- While the automatic black balance adjustment is being performed
- When the test signal is output
- While the tape is being rewound

In addition to the above, the BVP-30AP has the following features.

- Low power consumption
- Colour framing pulse output when the camera is operating with the internal sync system.
- Gen lock function when the CA-3 or CA-30P camera adaptor is used
- 2 line image enhancer
- Shading compensator to use the lens extender
- Masking circuit
- Split color bar generator
- Sharp-directional microphone
- Automatic iris adjustment mechanism
- Video level indicator
- Adjusting the audio recording level of audio channel 1
- Zebra pattern ON/OFF switch
- Built-in monitor speaker
- Attaching an external microphone
- High resolution viewfinder

1-2. LOCATION AND FUNCTION OF PARTS



① VTR mount

Mount a BVV-1PS/BVV-1APS portable videocassette recorder, CA-3 or CA-30P camera adaptor, etc.

② VTR connector (50 pin)

Connect the 50-pin connector of the BVV-1PS/BVV-1APS videocassette recorder, CA-3 or CA-30P camera adaptor, etc.

③ WHITE BAL (balance) switch

PRESET: The white balance is set at the factory to the value of 3200°K with the FILTER selector ⑨ set to "1", the white balance of the iodine lamp. Use this position when you have no time to adjust the white balance.

AUTO: Generally set to this position. When the AUTO W/B BAL switch ②⑤ is set to WHT, the white balance will automatically adjusted and memorized. After the adjustment, the memorized white balance value is always obtained at this position.

④ OUTPUT (DCC) selector

Selects the signal output from the VTR connector ②, or TEST OUT connector ②② and to the viewfinder.

CAM: Signal picked up by the camera.

At the DCC ON position, the built-in DCC circuit functions.

When the DCC circuit is not used, set the selector to DCC OFF.

BARS (DCC OFF): Color bar signal. Set at this position to use the color bars to adjust the video monitor or to record the color bars.

⑤ GAIN selector

Generally set this selector to "0". When the selector is set to "9" or "18", the video output level will be raised by 9 dB or 18 dB respectively.

⑥ CAMERA/VTR power switch

Turns on and off the power to the camera and the videocassette recorder.

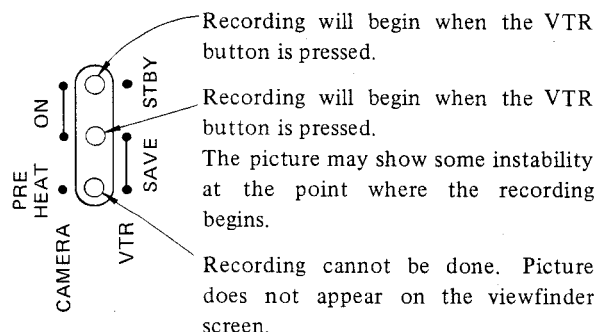
CAMERA-PREHEAT: Power is supplied to the pickup tube and the heater of the picture tube in the viewfinder but the picture does not appear on the viewfinder screen.

The power consumption is reduced at this position.

CAMERA-ON: The power is supplied to all part of the camera and the picture appears on the viewfinder screen.

VTR-SAVE: The head drum stops rotating and the tape is unthreaded. Because the power consumption is reduced at this position, the recording time will be longer.

VTR-STBY: The head drum starts rotating and the tape is threaded around the drum head.



⑦ Shutter open hole

This hole is equipped to force the shutter to open by breaking it when the shutter does not open in normal operation. If the shutter does not open during operating the camera, check that the power supply circuit works correctly and that the connections are correct. If the shutter still does not open after checking the above items, remove the rubber cap and push in a thin stick like a thin screwdriver, and the shutter will open.

After opening the shutter with this method, be sure to contact your Sony personnel.

⑧ SLIDE lock level

Turn the lever clockwise and the viewfinder is locked. Turn the lever counterclockwise to release the lock and the viewfinder can be moved horizontally to be adjusted the position for easy-viewing.

⑨ FILTER selector

Select the appropriate filter according to the lighting conditions.

| Filter number | Color temperature | Lighting conditions |
|---------------|----------------------|---|
| 1 | 3200°K | sunrise, sunset, in a studio |
| 2 | 5600°K + 1/4 ND* | bright outdoors |
| 3 | 5600°K | cloudy or rainy outdoors |
| 4 | 5600°K + 1/16 ND* | clear and bright scenery of snow, high mountains or seaside |

* ND: neutral density filter

⑩ TALLY/ZEBRA ON/OFF switch

ZEBRA TALLY: The zebra pattern and tally lamp are turned on.

OFF: The zebra pattern and tally lamp are turned off.

ZEBRA: The zebra pattern is turned on, and the tally lamp is turned off.

⑪ Eyepiece focus control

Adjust this control so that the clearest picture can be obtained on the viewfinder screen.

- This control does not affect the output signal of the camera.

⑫ CONTR (contrast) control

Adjusts the contrast of the picture on the viewfinder screen.

- This control does not affect the output signal of the camera.

⑬ BRIGHT (brightness) control

Adjusts the brightness of the viewfinder screen. To obtain a brighter picture, turn this control clockwise.

- This control does not affect the output signal of the camera.

⑭ Camera mount ring and fixing screw

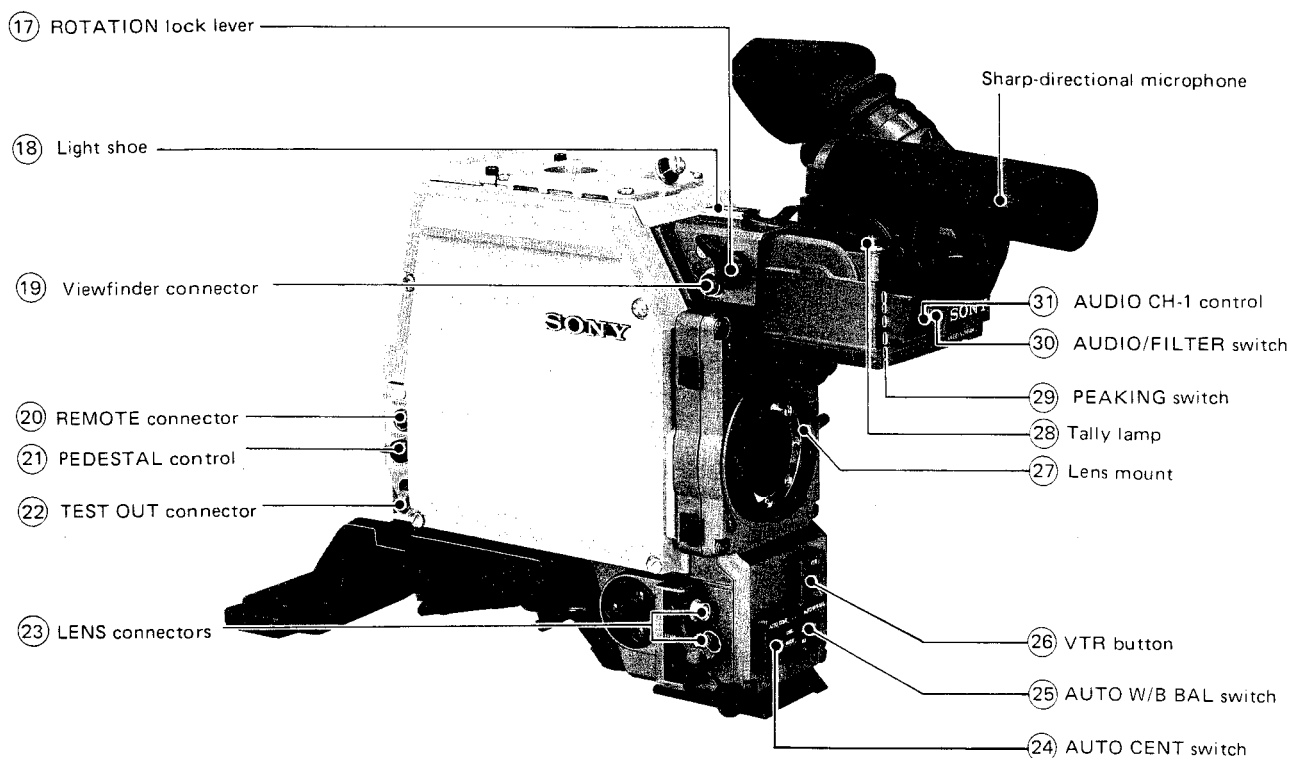
Generally do not remove the viewfinder from the camera. If it is unavoidable to remove the viewfinder, loosen the fixing screw and turn the mount ring clockwise from the lens side, and pull the viewfinder. To mount the viewfinder again, turn the mount ring counterclockwise and be sure to fasten it with the fixing screw securely.

⑮ Speaker volume control

Adjusts the sound level from the speaker. Turning the control to clockwise increases the sound volume. At the fully counterclockwise position, no sound can be heard.

⑯ Speaker

During recording, simultaneous playback sound (mixed sound of the audio channels 1 and 2) can be monitored. In other mode, the E-to-E sound selected on the VTR can be heard. The sound corresponding to the warning lamps is also heard.



①⑦ ROTATION lock lever

Turn the lever down to lock the viewfinder. Turn the lever counter-clockwise to release the lock, and the viewfinder can be rotated.

①⑧ Light shoe

Attach a video light, etc.

①⑨ Viewfinder connector (12 pin)

Connect a BVF-50 viewfinder.

- When a viewfinder is connected to this connector, be sure to remove the supplied 1.5-inch viewfinder from the camera. Do not connect two viewfinders simultaneously.

②⑩ REMOTE connector (6 pin)

Connect the appropriate equipment to remotely control the fine adjustment of the iris, pedestal level and gain.

②① PEDESTAL level control

Adjusts the pedestal level.

②② TEST OUT connector (BNC type)

The following signals selected by the ENC/REG switch on the built-in circuit board will be output.

REG: R, G, B, R-G or B-G test signal selected by the R/OFF/B and the G/OFF/-G switches is output.

ENC: Encoded video signal is output. Usually use this position.

②③ LENS connectors (6 pin, 12 pin)

Connect a cable of the lens to the appropriate connector, 6 pin or 12 pin.

For details on the usable lenses, consult your Sony personnel.

②4 AUTO CENT (automatic centering adjustment) switch
PRESET: Use this position when the memorized centering value is not used.

MEMORY: Use this position when the memorized centering value is used after the automatic centering adjustment.

START: For automatic centering adjustment, point the camera to an appropriate object and set this switch to START. The switch automatically returns to the center position when the switch is released.

②5 AUTO W/B BAL (automatic white/black balance adjustment) switch

WHT: For automatic white balance adjustment, set the WHITE BAL switch ③ to AUTO and set this switch to WHT. The adjusted value will be automatically memorized.

BLK: For automatic black balance and black set level adjustment, set this switch to BLK. The adjusted value will be automatically memorized.

- The switch automatically returns to the center position when it is released after setting the switch to WHT or BLK.

②6 VTR button

Press to start recording. To stop, press this button again. This button functions the same as the VTR button on the lens. To use this button, remove the cover.

②7 Lens mount (special bayonet type)

Attach the lens.

②8 Tally lamp

This lamp lights or blinks when the REC lamp on the viewfinder lights or blinks.

②9 PEAKING switch

The outline of the picture on the viewfinder is enhanced so that the focus can easily be adjusted. Every time the switch is pressed, the function is turned on and off alternately.

③0 AUDIO/FILTER switch*

AUDIO: Use this position when the recording level of audio channel 1 is adjusted by the AUDIO CH-1 control. The FILTER/AUDIO indicator in the viewfinder shows the audio recording level.

FILTER: The FILTER/AUDIO indicator in the viewfinder shows the number of the filter selected by the FILTER selector. When the camera is used together with the machine except for the BVV-1PS with the serial No. 50000 or higher or BVV-1APS, be sure to set the switch to this position.

③1 AUDIO CH-1 (audio channel-1 recording level) control*

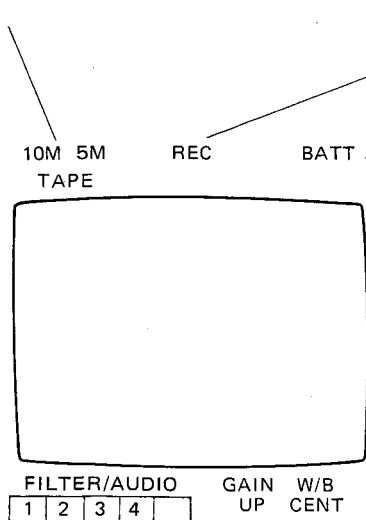
When the AUDIO CH-1 MANU/AUTO selector on the BVV-1PS/BVV-1APS is set to MANU and the AUDIO/FILTER switch ③0 is set to AUDIO, the recording level of audio channel-1 can be adjusted manually. Adjust the level during observing the FILTER/AUDIO indicator in the viewfinder.

* These switch and control are effective only when the BVP-30AP is used together with the BVV-1PS with the serial No. 50000 or higher or with the BVV-1APS.

Indicators in the viewfinder

Tape remaining time indicators

Show in minutes the amount of tape remaining for recording. These indicators function only when the BVP-30AP and the BVV-1PS/BVV-1APS are directly connected with the 50-pin connectors.



REC (recording) indicator (red)

Lights during recording, and blinks when one of the warning lamps on the BVV-1PS/BVV-1APS blinks or lights. For details, refer to the instruction manual furnished with the connected VTR.

BATT (battery) indicator (red)

The indicator starts blinking several minutes before the battery is discharged to the level which cannot perform the operation of the camera, and keep lighting at that level.

W/B CENT (white balance/black balance/centering) indicator (orange)

Lights when the automatic white balance, black balance and centering adjustment has been completed and goes off after 5 seconds. If the automatic adjustment cannot be done, the indicator blinks for about 5 seconds.

FILTER/AUDIO indicator

When the AUDIO/FILTER switch is set to AUDIO, the audio level is indicated. When the switch is set to FILTER, the number of the filter selected by the FILTER selector lights.

GAIN UP indicator

Lights when the GAIN selector is set to "9" or "18".

Tape remaining time indicators and the remaining time

These indicators function only when the BVP-30AP and the BVV-1PS/BVV-1APS are directly connected with the 50-pin connectors.

| Remaining time (minutes) | 20 | 15 | 10 | 5 | 2 | 0 |
|--------------------------|--------|-----|----|----|---|------|
| Indicators | 10M 5M | 10M | 5M | 5M | | |
| REC indicator | REC | | | | | REC* |



: Blinks in 1 Hz interval

* : Blinks in 4 Hz interval

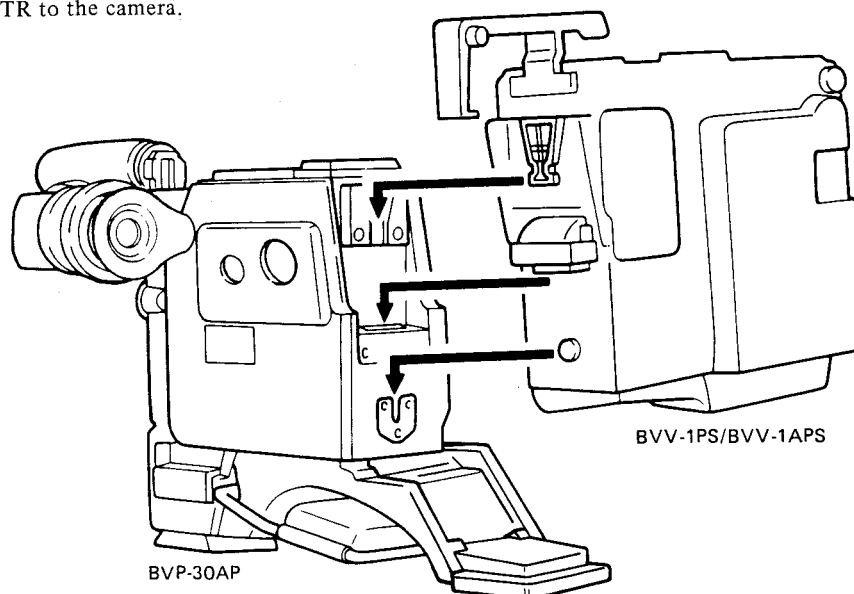
1-3. SET-UP

1-3-1. Set up with the BVV-1PS/BVV-1APS/BVV-5PS VTR

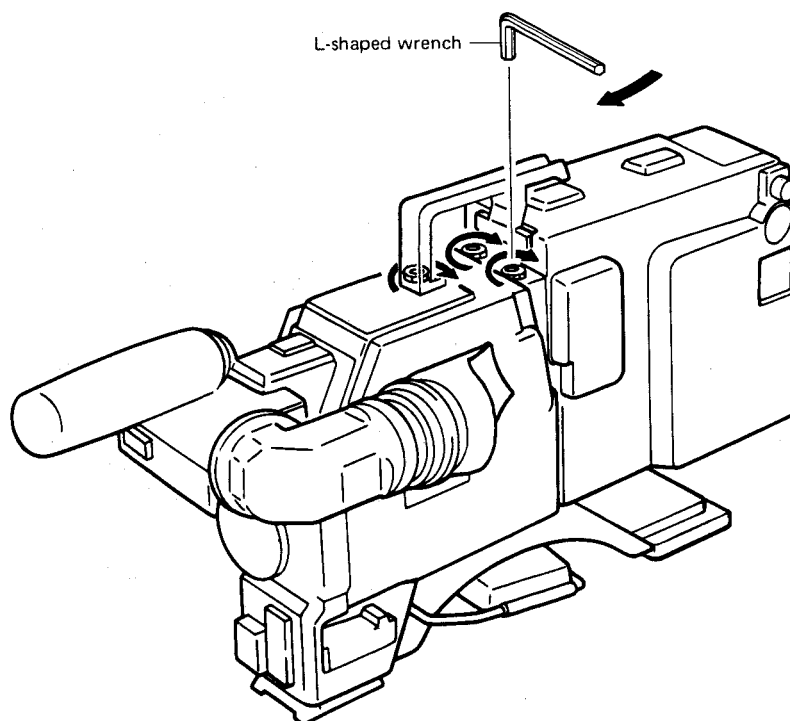
The following shows an example of how to set up the BVP-30AP and the BVV-1PS/BVV-1APS/BVV-5PS portable videocassette recorder. To set up the BVP-30AP with another unit, refer to the instruction manual furnished with each unit.

For the BVV-1PS/BVV-1APS VTR

1. Attach the VTR to the camera.

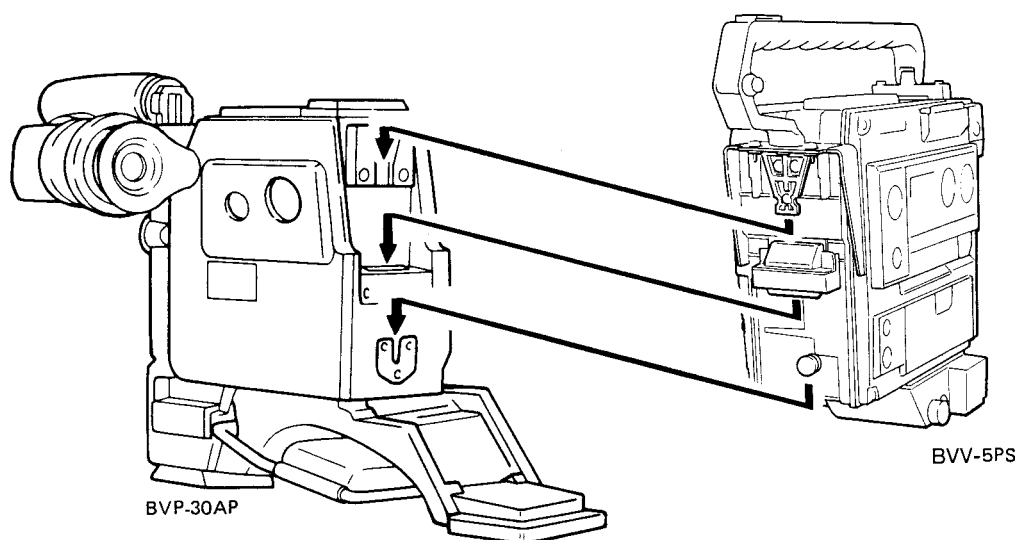


2. Tighten the screws (supplied with the VTR) securely.

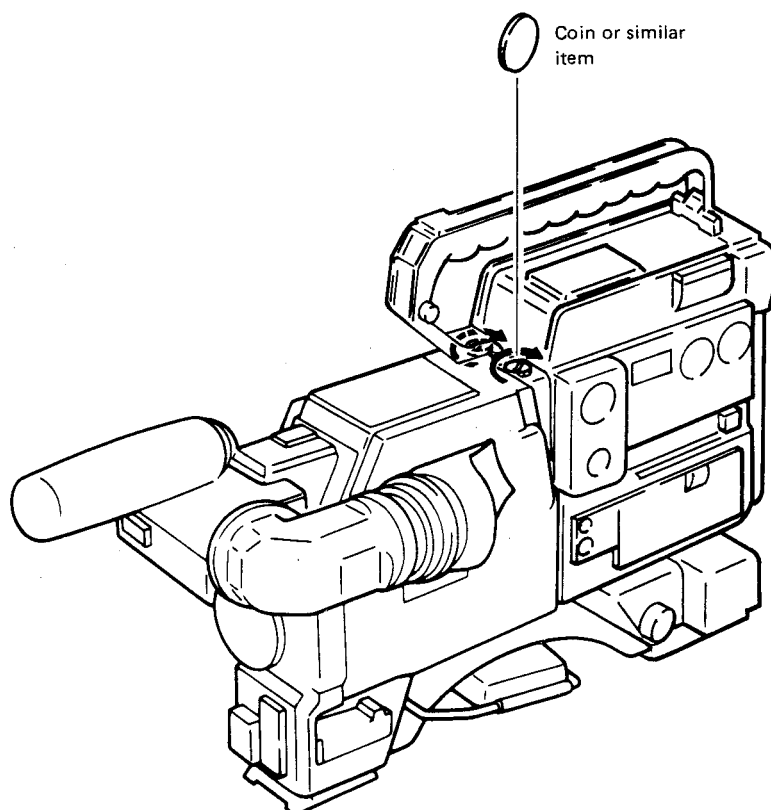


For the BVV-5PS VTR

1. Attach the VTR to the camera.

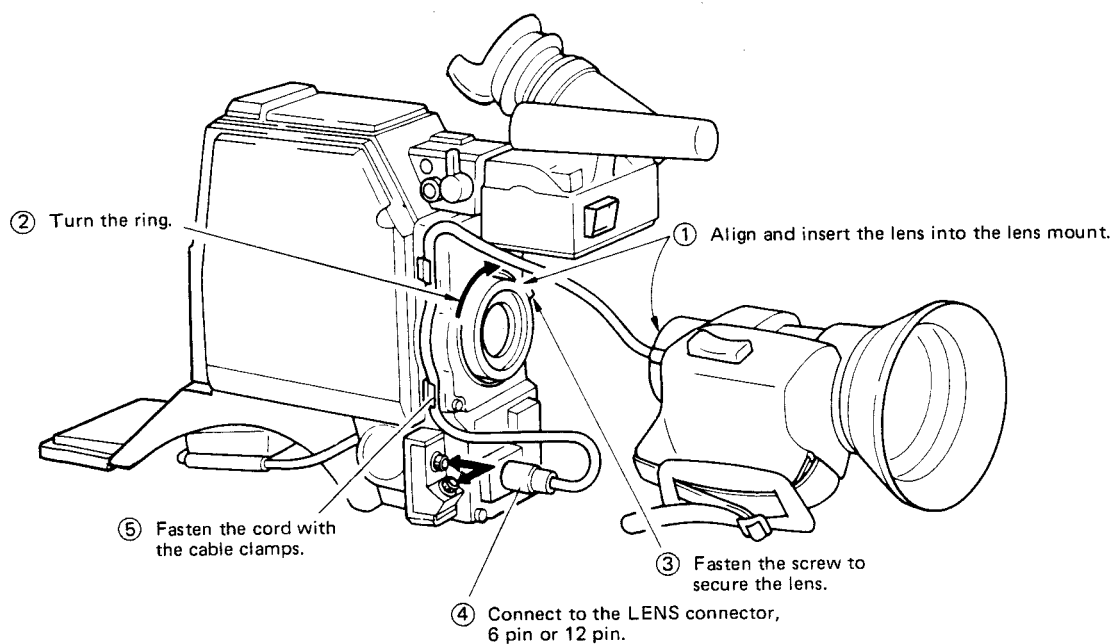


2. Tighten the screws (supplied with the VTR) securely.

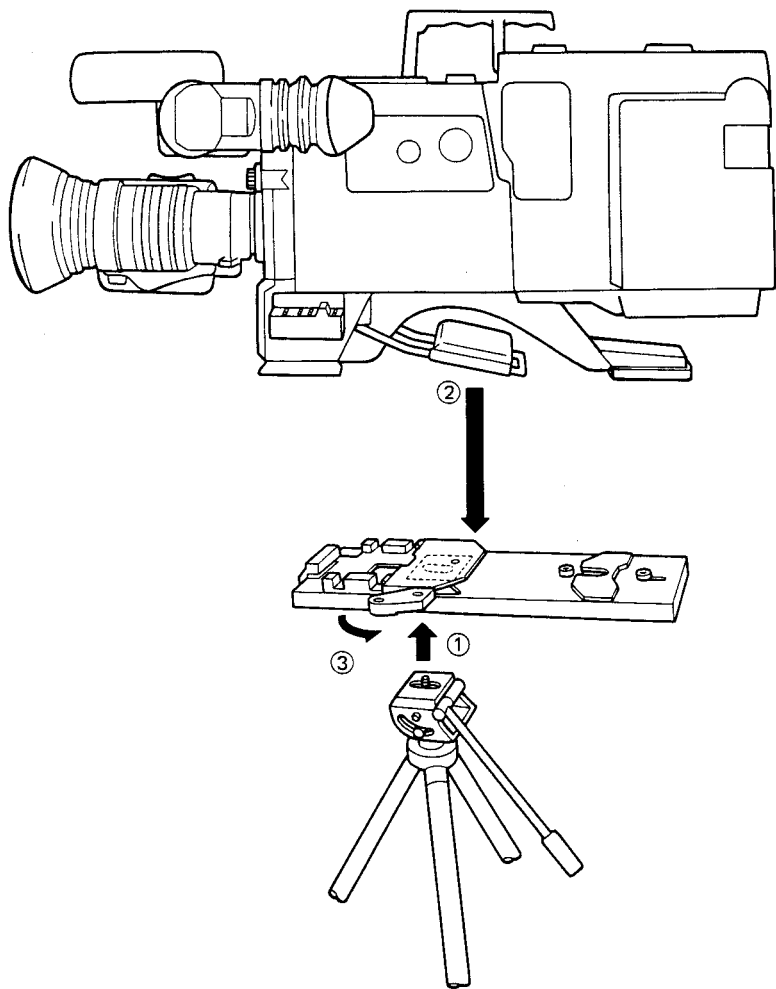


1-3-2. Lens Attachment

- For the details on the lens, refer to the instruction manual furnished with the lens.



1-3-3. Tripod Attachment

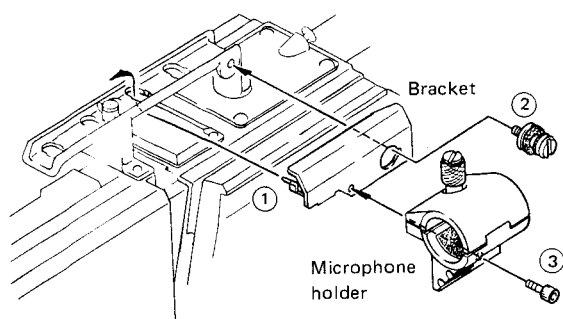


1-3-5. External Microphone Attachment

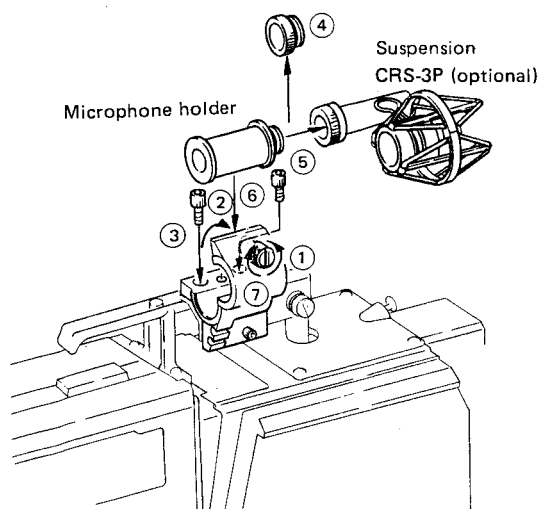
When a suspension is used

When a BVP-30AP is used with the BVV-1PS/BVV-1APS as a BVW-30AP, attach the microphone to the camera by using a suspension, and the vibration noise of the VTR can be avoided.

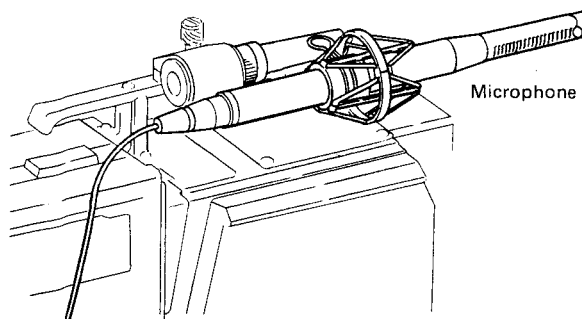
1. Attach a bracket and a microphone holder to the handle.



2. Fix the microphone holder, clamp the suspension with the microphone holder, and fasten the screw.



3. Install the microphone to the suspension.

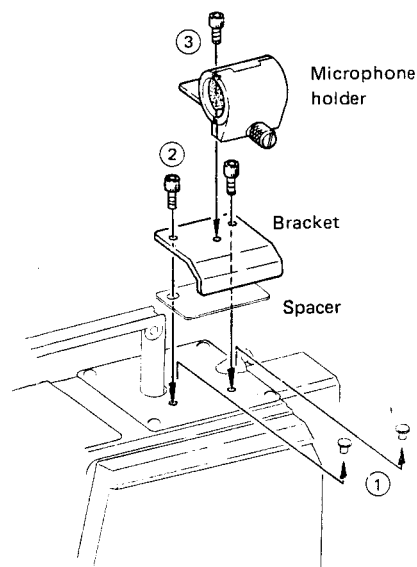


4. Connect the microphone cable to the MIC IN connector on the VTR.

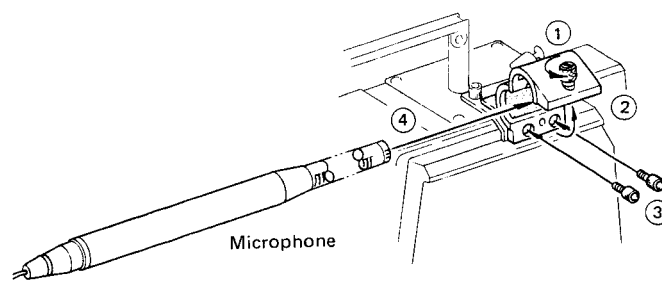
When a suspension is not used

If the suspension is not used, the recording sound is affected by the vibration noise of the VTR. When the camera is used with the BVV-1PS/BVV-1APS, avoid this method. When the CA-3 or CA-30P is used with the BVP-30AP, this method is recommended.

1. Remove the caps on the camera, and attach a bracket and a microphone holder to the camera.



2. Fix the microphone holder, clamp the microphone with the microphone holder, and fasten the screw. If the diameter of the attached microphone is small, attach the supplied adaptor to the microphone, and clamp it.

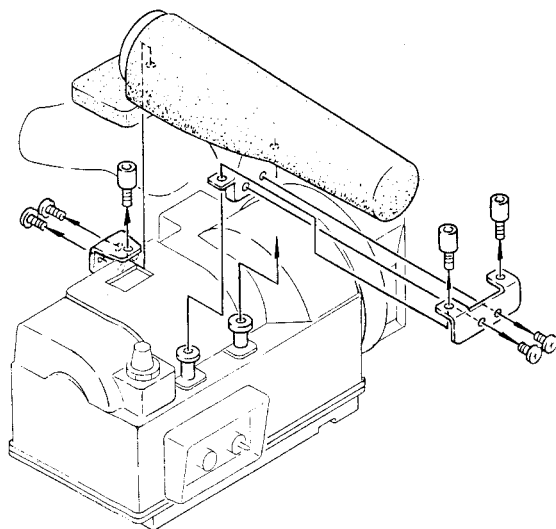


3. Connect the microphone cable to the MIC IN connector on the camera adaptor.

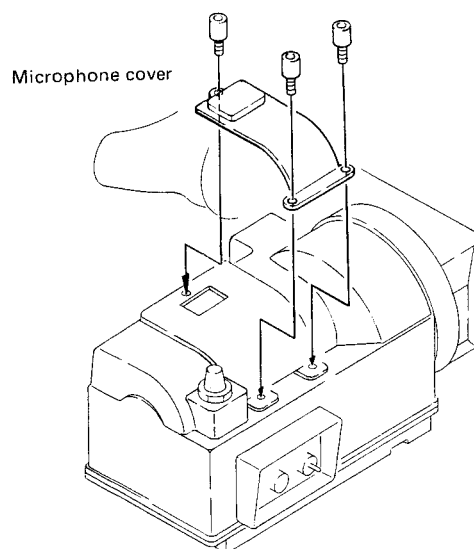
To remove the built-in microphone

When an external microphone is connected, the signal from the built-in microphone is automatically cut off. The built-in microphone can be removed with the following method, and if it is removed, attach the microphone cover supplied.

1. Remove the built-in microphone and the connector.



2. Attach the microphone cover.

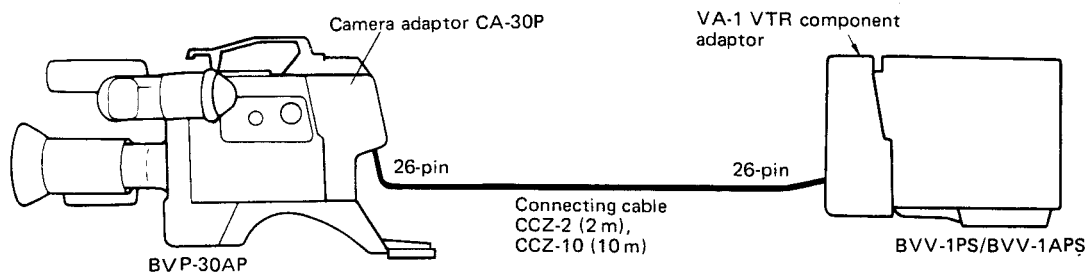
**1-4. POWER SOURCES**

The power is supplied from the unit connected to the 50-pin connector on the BVP-30AP. Please refer to the instruction manual furnished with the unit connected to the 50-pin connector.

1-5. CONNECTIONS

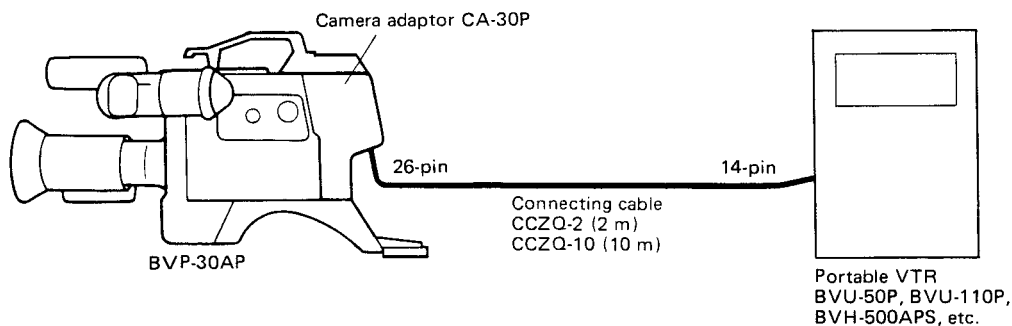
The BVP-30AP can be used as follows besides being directly connected to the BVV-1PS/BVV-1APS with the 50-pin connectors.

Connection with the BVV-1PS/BVV-1APS by using the connecting cable



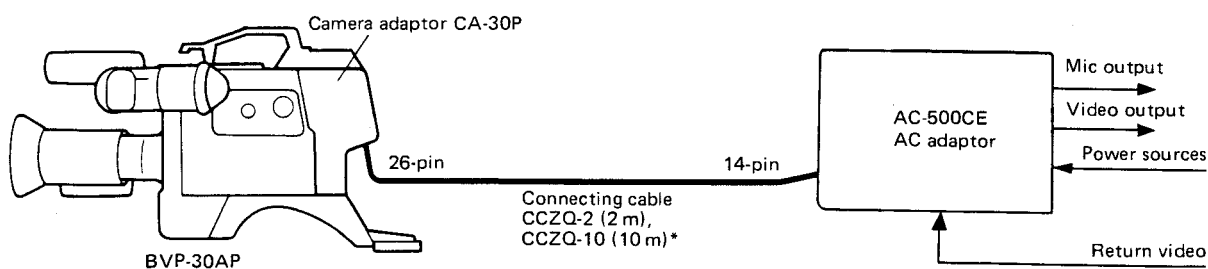
- The VA-1VP VTR composite/component adaptor can be connected in the same way.

Connection with a conventional portable VTR



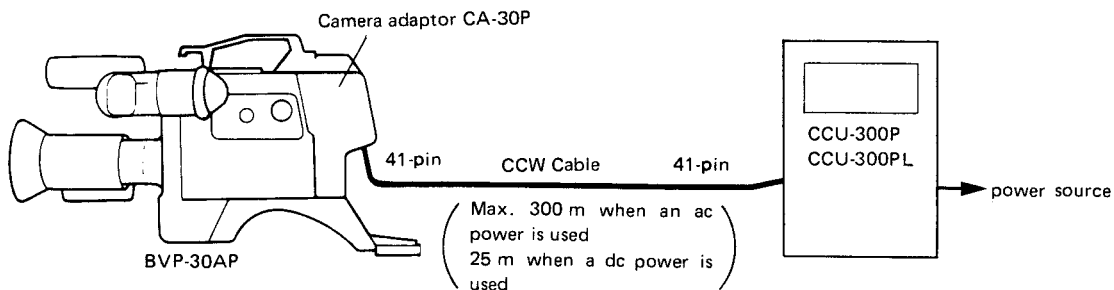
- When the power is supplied from the VTR by using a camera cable of 10 meters long, the picture quality after the BATT indicator in the viewfinder starts blinking is not guaranteed.

Connection with the AC-500CE



- * To supply only the power to the camera, connect the CA-30P and the AC-500CE with a 4-pin cable.
- When the AC-500CE is connected to the VTR with a 4-pin cable, the power will be supplied to the VTR.

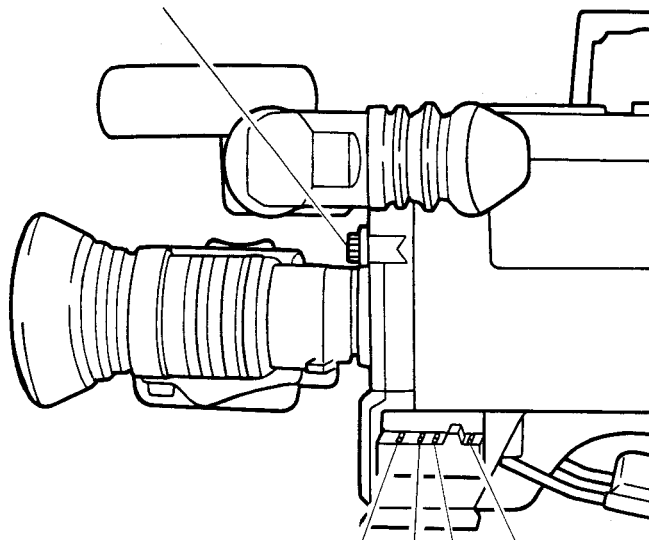
Connection with the CCU-300P/CCU-300PL



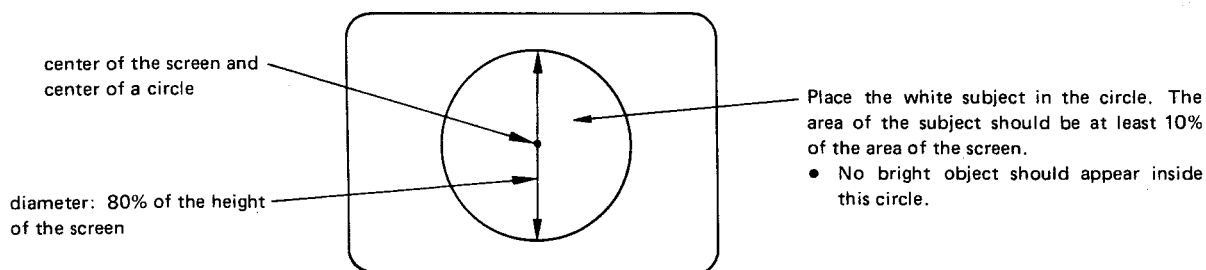
1-6. ADJUSTMENTS

1-6-1. White Balance and Black Balance Adjustments

1. Set the **FILTER** selector to the position corresponding to the lighting conditions.



2. Set the switches as follows.
3. Place a white pattern under the same lighting conditions as those under which the recording will be made, and zoom up on a pattern.
A white object such as white cloth, white wall, etc. can be used instead of the white pattern.
The minimum white area required for adjustment is as follows.



4. If the automatic iris is not equipped, adjust the iris. If the automatic iris is equipped, set the iris auto/manual switch to auto.
5. Set the **AUTO W/B BAL** switch to **BLK**. The switch automatically returns to the center position when it is released. After about 5 seconds, the black balance is automatically adjusted and the **W/B CENT** indicator in the viewfinder will light. The indicator will go off after about 5 seconds. The adjusted value will be memorized.
 - The shutter closes when the switch is set to **BLK**.

6. Set the AUTO W/B BAL switch to WHT. After about 1 second, the white balance will be automatically adjusted and memorized in the same way as above.

The white balance and the black balance adjustments has been completed.

- While the W/B CENT indicator is lighting, the next adjustment can be started. In this case, the indicator goes off when the switch is set to the other position, and lights again when the adjustment finishes.
- When the zoom lens with automatic iris is used, the hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)
- When the AUTO W/B BAL switch is set to BLK, the setting of the GAIN selector is automatically changed and the noise may appear on the viewfinder screen, but this is not a problem.
- When the lighting conditions of the subject is changed, adjust the white balance only. Readjustment of the black balance is not required.

If the W/B CENT indicator blinks

Check that the proper filter has been selected and adjust the white balance and black balance again.

When the WHITE BAL switch is set to PRESET

The white balance at the 3200°K can be obtained when the FILTER selector is set to "1". Adjust the black balance only by setting the AUTO W/B BAL switch to BLK.

Memorizing the white balance and black balance value

The BVP-30AP has the memory function for the white balance and the black balance. The built-in four memories store the adjusted white balance and black balance values at each filter. The memorized value will be kept for about a week after the power is turned off or until the readjustment is performed.

- The built-in four memories to store the white balance can be reduced to one. Open the RS-20 resistor on the internal AT-16 board.

1-6-2. Black Set Adjustment

The black set is adjusted by the AUTO W/B BAL switch together with the black balance.

To adjust the black set manually, use the volume on the built-in circuit board. For details, refer to Section 2.

1-6-3. Centering Adjustment

The centering of the R, G and B pickup tubes has been adjusted at the factory, so normally no readjustment will be necessary. If the centering adjustment is necessary, adjust as follows.

Adjust the white balance beforehand as indicated in 1-6-1.

1. Set the AUTO CENT switch to MEMORY.
2. Set the iris auto/manual switch on the lens to auto. Be sure that the iris is not fully open. If the iris is fully open, add illumination.
3. Shoot the supplied chart or an object.

When using the supplied chart

Adjust the camera position so that the supplied chart fills the screen.

When not using the supplied chart

Adjust the camera position so that the object is placed within the circle whose center is at the center of the screen and whose diameter is 80% of the height of the screen.

- Use an object which has both horizontal and vertical lines with appropriate contrast.
 - If possible, use the black-and-white picture so that the level of the R, G, B will be nearly the same. An object of one color or with one deep color may cause a centering error.
 - Do not use a moving object and do not move the camera quickly during adjusting.
 - Avoid using an object with thin lines, such as a registration chart.
4. Set the AUTO CENT switch to START. The switch automatically returns to the MEMORY position when it is released. After about 10 seconds, the centering is automatically adjusted and the W/B CENT indicator in the viewfinder will light. The indicator will go off after about 5 seconds.
 - While the centering being adjusted, the image enhancer is set to off and the edges in the circle whose diameter is 70% of the height of the screen are emphasized.
 5. Adjust the white balance again as the centering error may affect the white balance.

If the W/B CENT indicator blinks

An inappropriate test object is being used or

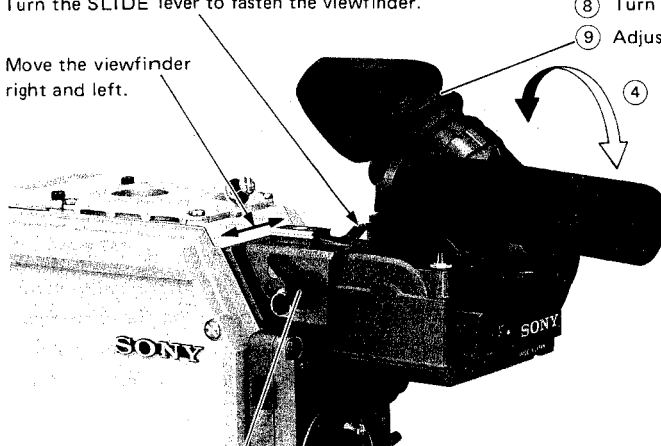
- The object has not enough edges and contrast.
- The iris setting is not proper.
- The object is out of focus.
- The object has moved during adjusting.
- The centering is out of the adjustable range.

Determine the cause and readjust.

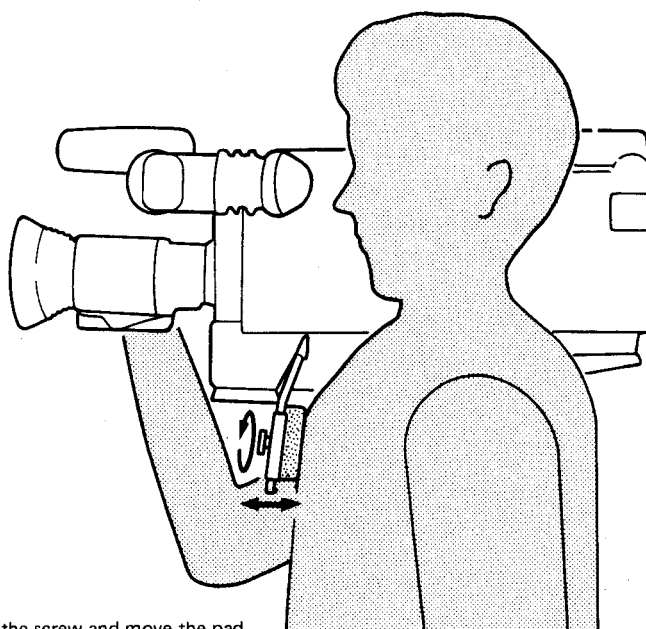
Memorizing the centering value

The adjusted centering value can be memorized in the same way as the white balance and black balance values and be kept for about one week after the power has been turned off. When more than one week has passed after the power has been turned off, the memory will be the factory-set value.

1-6-4. Viewfinder Adjustment

- ⑤ Turn the SLIDE lever to loosen it.
⑦ Turn the SLIDE lever to fasten the viewfinder.
⑥ Move the viewfinder right and left.
⑧ Turn the power on and display the picture on the screen.
⑨ Adjust the eyepiece focus control.
④ Adjust the angle.
② Turn the viewfinder until it will be horizontal.
- 
- ① Turn the ROTATION lever to loosen it.
③ Turn the ROTATION lever to fasten the viewfinder.

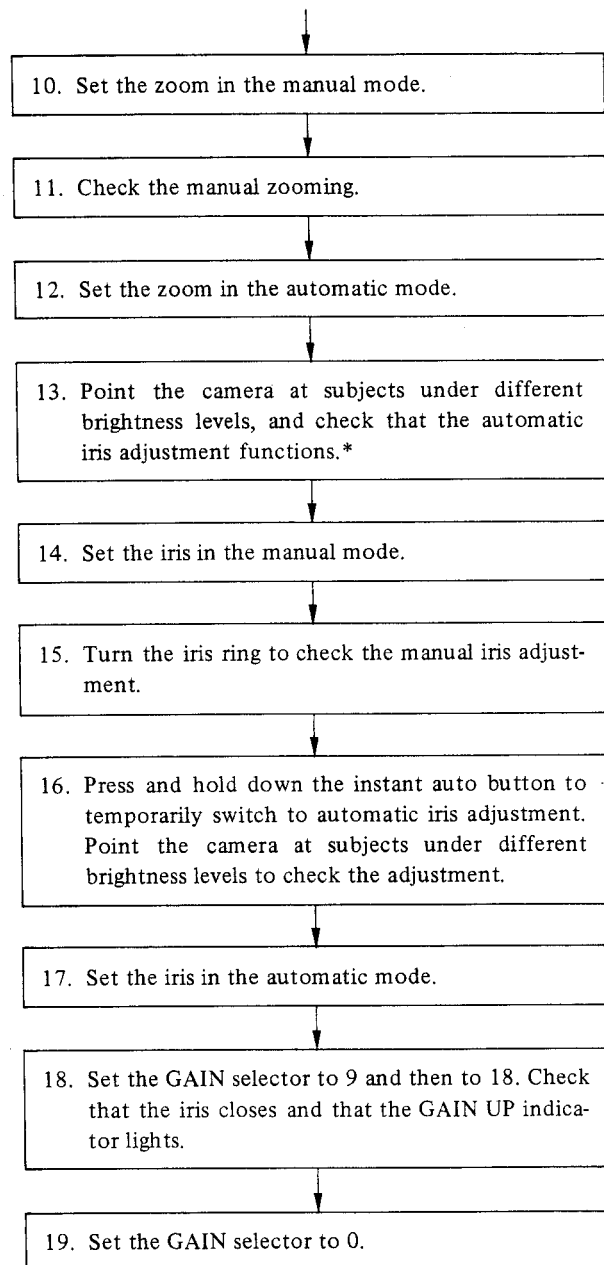
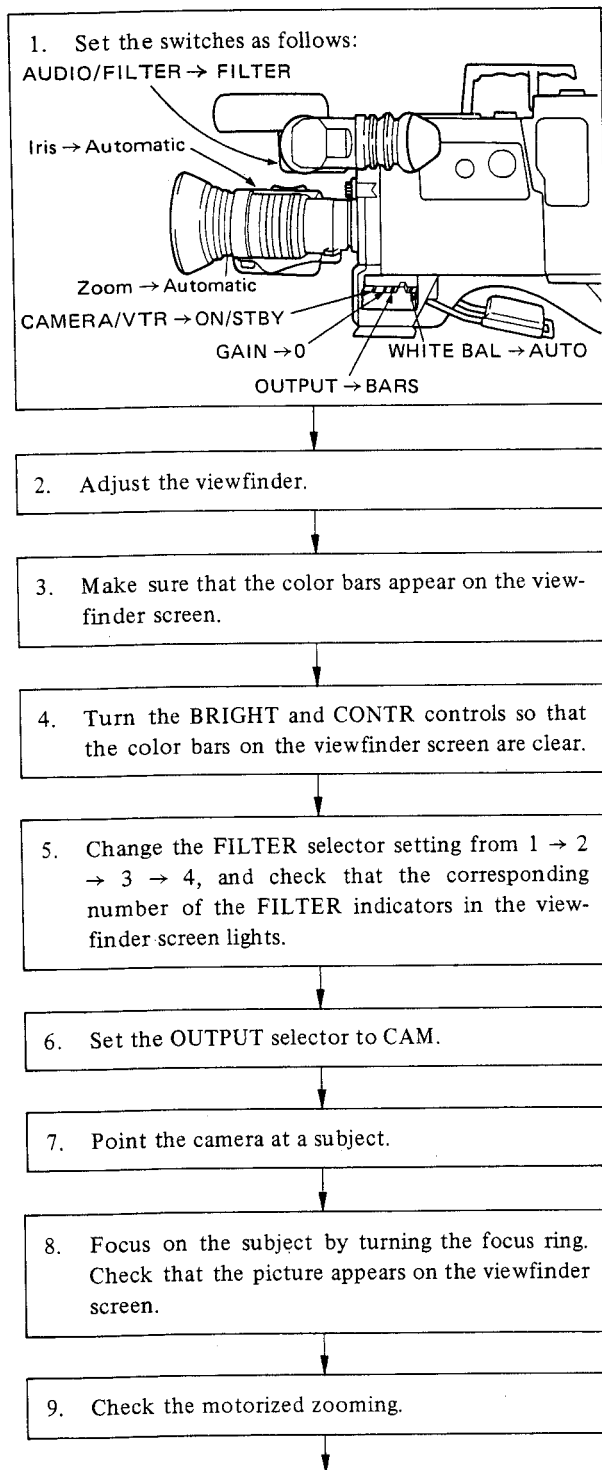
1-6-5. Brace Adjustment



Loosen the screw and move the pad to the position for easy-to-use.

1-7. OPERATION CHECKS

- The following is an example of operation. For details on operation of the lens, please refer to the instruction manual furnished with the lens.

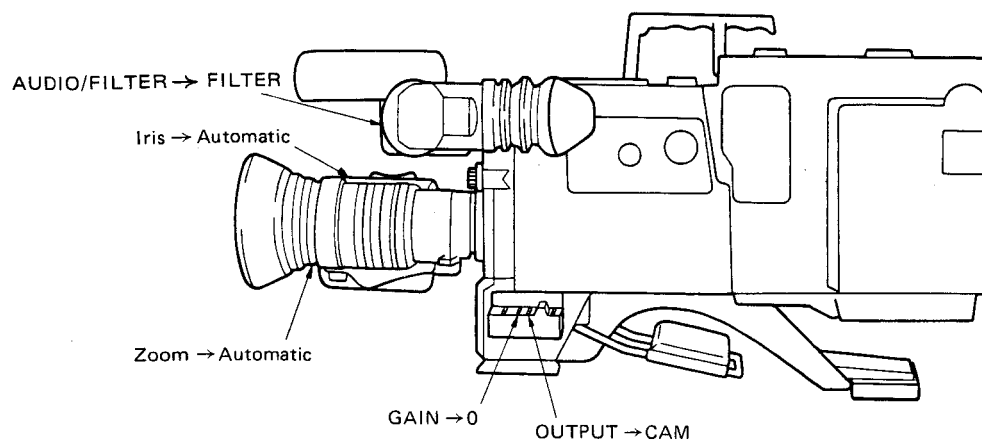


* When the lens with a 6-pin connector is used, the hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)

1-8. OPERATION

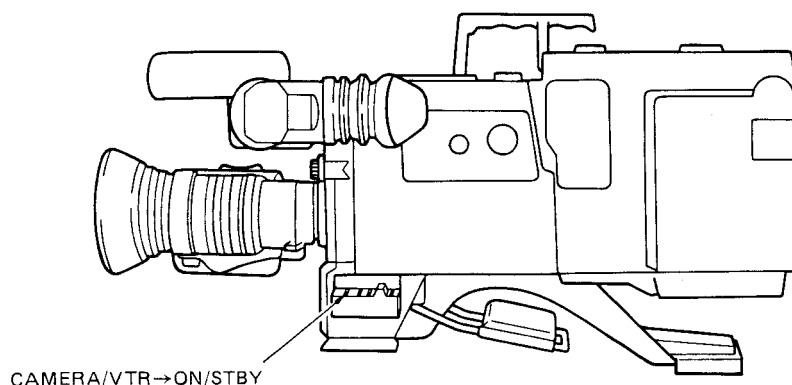
1-8-1. Preparation

Before operation, set the switches as follows.



1-8-2. Camera Recording

1. Turn on the power of the camera and the connected equipment.



2. Insert a cassette tape.
3. Select the appropriate filter.
4. Adjust the white balance and black balance.
When the white balance and black balance value has been memorized
Set the WHITE BAL switch to AUTO.

When the white balance and black balance value is not memorized but you want to start recording quickly
Set the WHITE BAL switch to PRESET and set the AUTO W/B BAL switch to BLK. The white balance and black balance at 3200°K is obtained.

To adjust the white balance and black balance

- ① Set the WHITE BAL switch to AUTO.
 - ② Shoot the white subject.
 - ③ Set the AUTO W/B BAL switch to BLK. When the W/B CENT indicator in the viewfinder lights, the black balance is adjusted.
 - ④ Set the AUTO W/B BAL switch to WHT. When the W/B CENT indicator in the viewfinder lights, the white balance is adjusted.
- For details, refer to "1-6-1. White Balance and Black Balance Adjustments".
5. Point the camera at the subject and adjust focus and zoom.
 6. Press the VTR button to start recording. The REC indicator in the viewfinder lights during recording.
 7. To stop recording, press the VTR button again.

Recording under the insufficient lighting

If a clear picture cannot be obtained because of insufficient lighting, set the GAIN switch to "9" or "18". The video output level can be raised 9 dB by setting the GAIN switch to the 9 position, and 18 dB by setting at the 18 position.

- Normally, set the selector to "0".

Checking the video level

The zebra pattern will appear on the part of the viewfinder screen where the video level of the picture is 70% (IRE UNIT). For manual iris adjustment, you can use this function for the appropriate setting. The zebra pattern can be disappeared by the TALLY/ ZEBRA ON/OFF switch. However if the switch on the built-in circuit board is set to OFF, the zebra pattern cannot be turned on and off with the TALLY/ZEBRA ON/OFF switch. For details, refer to Section 2.

1-9. PRECAUTIONS

Never point the camera directly at the sun.

Pointing the camera directly at the sun or other source of bright light may damage the pickup tube. Avoid continuous shooting of a subject in strong light, which may also damage the pickup tube. If shooting in a strong light is necessary, close the iris as much as possible.

Avoid rough handling or mechanical shock to the camera.

After using the camera

Turn off the power of an equipment connected to the camera.

Operating and storage locations

Avoid operating and storing the camera in the following locations.

- Extreme hot or humid places (The operating temperature is from -20°C to $+40^{\circ}\text{C}$, -4°F to $+104^{\circ}\text{F}$.)
- Places subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Places with subject to a strong magnetic field.

Keep the camera in a horizontal positions and allow adequate air circulation.

Clean the viewfinder lens with a lens cleaner available at camera stores.

Do not use any type of solvent, such as alcohol, benzine or thinner.

1-10. SPECIFICATIONS

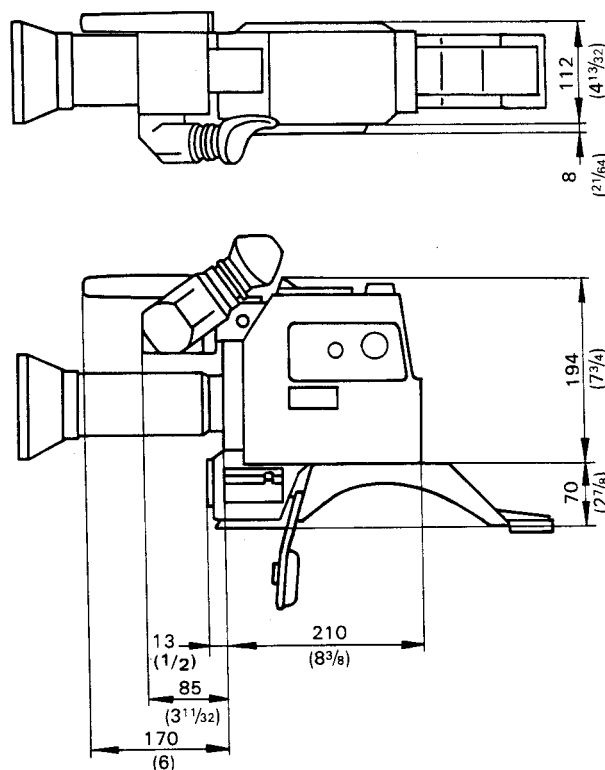
Camera

| | |
|------------------------------|--|
| Pickup tube | 2/3-inch Plumbicon (magnetic focus, static deflection) |
| System | RGB 3-tube system (with quartz filter) |
| Spectral system | F1.4 prism system |
| Built-in filters | 1: 3200°K 2: 5600°K + 1/4ND 3: 5600°K 4: 5600°K + 1/16ND |
| Lens mount | Special bayonet mount |
| Video output | PAL, 1.0 V(p-p), 75 ohms, unbalanced, sync negative Two outputs (TEST OUT, VTR connector) |
| Connectors | VTR: 50 pin (video output, microphone output, sync output, power input) TEST OUT: BNC type LENS: 6 pin, 12 pin REMOTE: 6 pin |
| Sensitivity | 2000 lux with f4.5 (typical), 89.9% reflectance |
| Minimum subject illumination | 25 lux (f1.4, +18 dB gain) |
| Video signal-to-noise ratio | 57 dB (typical) |
| Horizontal resolution | 650 (center) |
| Registration | 0.1% for Zone I (within circle with a diameter corresponding to 80% of picture height) 0.15% for Zone II (within circle with a diameter corresponding to picture width) 0.3% for Zone III (others) |
| Geometric distortion | Less than 1% |
| Power requirements | 12 Vdc (10.5 - 17 V) |
| Power consumption | 24W |
| Warm-up time | Approx. 3.5 seconds (from preheat condition) |
| Operating temperature | -20°C to +50°C (-4°F to +122°F) |
| Storage temperature | -20°C to +60°C (-4°F to +140°F) |
| Weight | 46 kg with viewfinder (10 lb 2 oz) |

Design and specifications subject to change without notice.

Dimensions

Unit: mm (inches)



Viewfinder

| | |
|--------------|--|
| Picture tube | 1.5-inch monochrome BRIGHT control, CONTR control, TALLY/ZEBRA ON/OFF switch, PEAKING switch, AUDIO/FILTER switch, AUDIO CH-1 control |
| Resolution | 500 TV lines |
| Microphone | Sharp-directional |

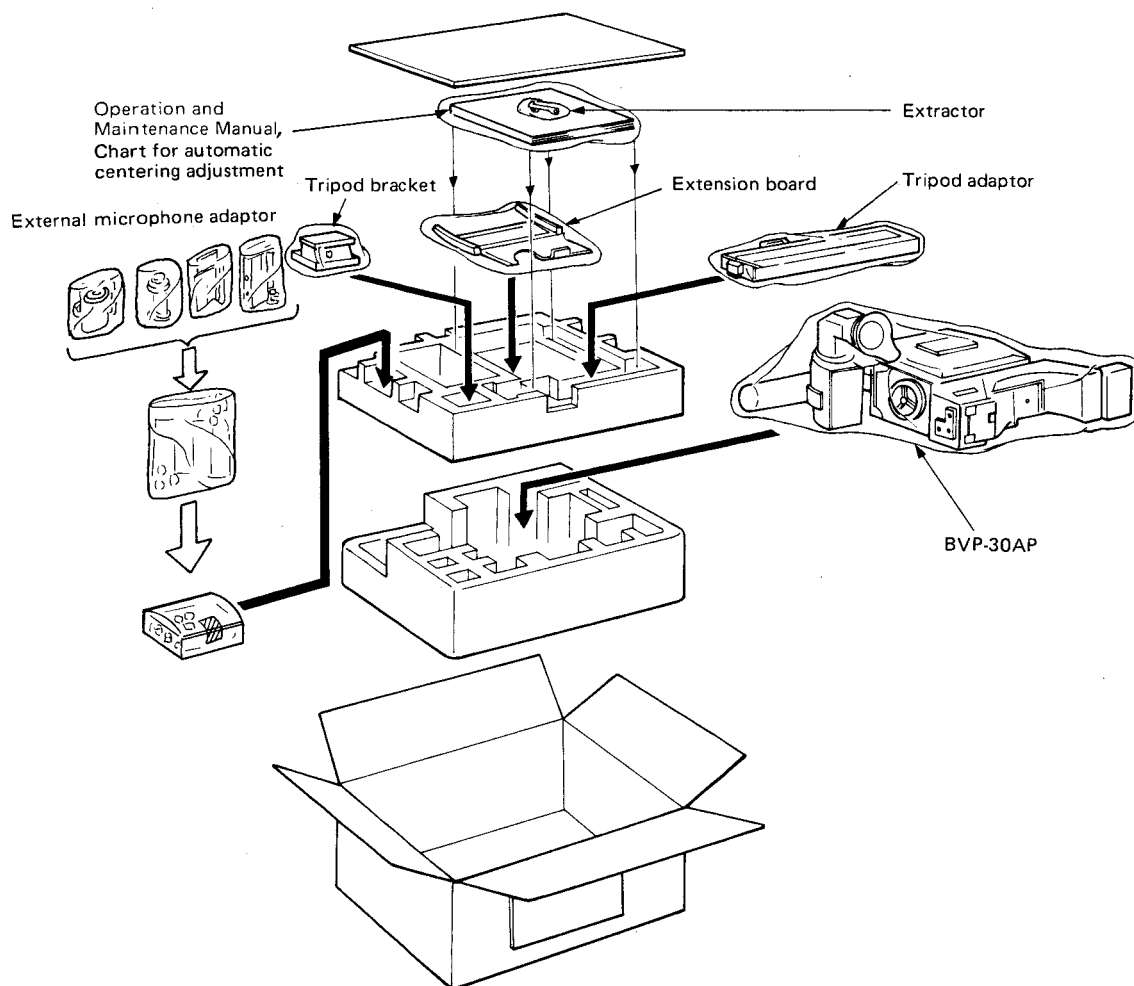
Supplied accessories

Tripod adaptor x1
Tripod bracket x1
Extension board x1
Extractor x1
Chart for automatic centering adjustment x1
External microphone adaptor x1

Recommended equipment

BVV-1PS, BVV-1APS portable videocassette recorder
CA-3, CA-30P, camera adaptor
AC-500CE AC adaptor
RM-P3 remote control unit
BVF-50 video monitor

1-11. PACKING OF THE BVP-30AP



1-12. HOW TO OPERATE THE BETACAM SYSTEM BVW-30AP

1-12-1. Features

Compact and lightweight

The BVP-30AP camera, the BVV-1PS/BVV-1APS VTR, lens, battery and cassette tape together weigh only about 10 kg.

Wireless system

The camera, VTR, viewfinder, battery, microphone, etc. can be connected without using cables.

Low power consumption

The power consumption is so low that the unit can be operated for about 30 minutes with a single NP-1 battery pack when the BVV-1PS/BVV-1APS is used together.

Video and audio confidence

The video and audio confidence system makes it possible to check the recording picture and sound.

High-quality picture

A newly-developed recording system using 1/2-inch cassette tape has greatly improved the picture quality, which now approaches the quality of the 1-inch VTR picture. The three-pickup tube camera using Magnetic focus-Static deflection Plumbicon tubes also assures high quality picture.

Built-in time code generator

A built-in time code generator allows simultaneous recording of the time code during operation. The user bit can also be recorded.

Independent time code track

The time code track is independent of the video track so that time code recording or erasing is possible using an editing machine.

Two audio channels

The sound from a built-in microphone or external microphones or the sound from other audio sources can be recorded on two audio channels separately.

Composite shooting

Videocassette programs can be composed shot-by-shot without any glitches between scenes because vertical-interval timing with a tape back-up feature guarantees a clean cut every time.

Warning system

If there is a problem, warning lamps allow you to monitor the operation and alarm is sounded simultaneously from the speaker or earphone.

Tape remaining time indicator

The tape remaining time indicators are situated in the viewfinder.

Use of the wireless microphone system

A receiver of the Sony wireless microphone system can be attached to the system.

Additional battery pack

One more battery pack can be used together with the battery pack installed in the battery compartment of the BVV-1PS/BVV-1APS.

Dolby NR* (Noise Reduction) C-type system for improving sound quality

The newly developed C-type Dolby NR system is employed for an improved S/N ratio and wider dynamic range. To activate the Dolby NR circuit, refer to section 2 of the BVV-1PS/BVV-1APS instruction manual.

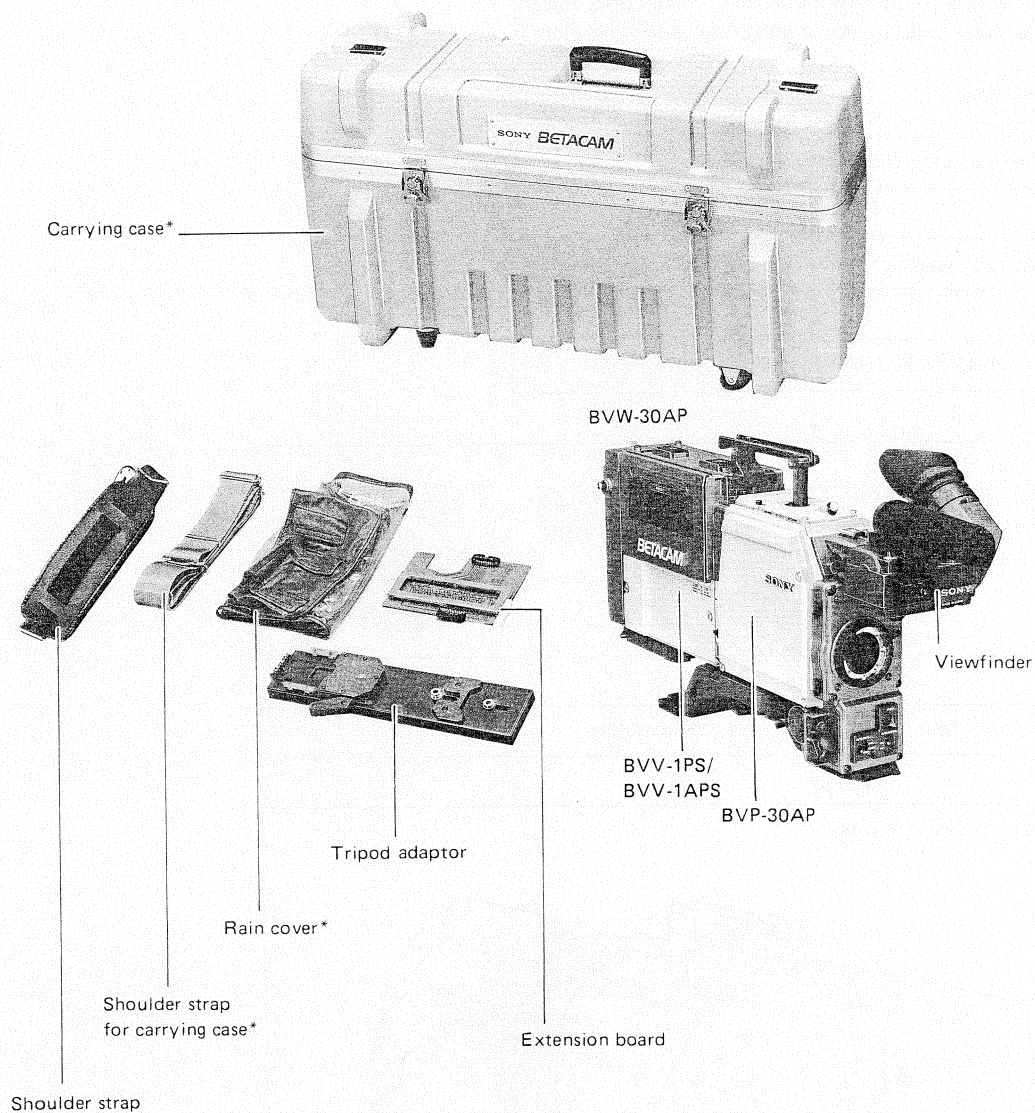
- * “Dolby” and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

Note

When the BVV-1PS with the serial No. 49999 or less is used, the following functions of the BVW-30AP do not work.

- The audio level indicator in the viewfinder
- The recording level control of audio channel 1

1-12-2. Components of the BVW-30AP



Battery compartment lid strap
 Chart for the automatic centering adjustment
 External microphone adaptors
 Extractor
 50-pin caps
 Time code cable
 6-pin connector

* A carrying case, a shoulder strap for carrying case and a rain cover are supplied to the Betacam system BVW-30AP. When a BVV-1PS/BVV-1APS VTR and a BVP-30AP camera are obtained separately, they will not be supplied. To obtain them, please consult your Sony personnel.

1-12-3. Check Routines

Before operation, we recommend to perform the following check and confirm that the Betacam system works correctly. In this case, use a color monitor to check the picture.

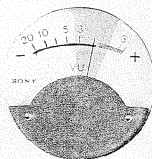
1. Preparation

1. Insert a fully-charged battery pack.

2. POWER switch → ON

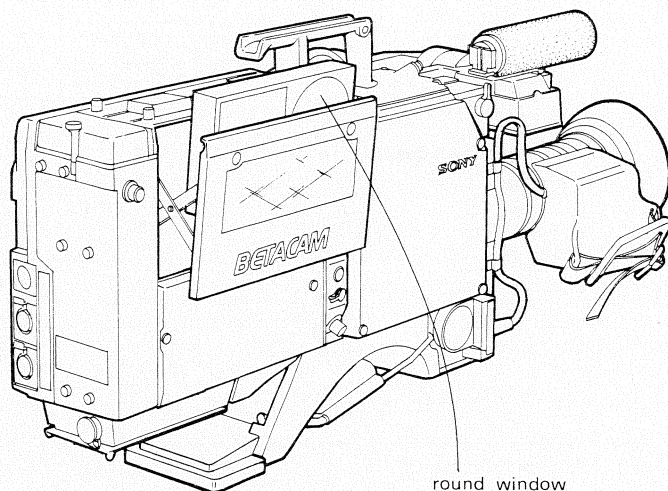
3. Check that the HUMID lamp does not light.

4. Check the battery.
Set the METER SELECT switch to BATT and check that the meter pointer deflects into the green zone.



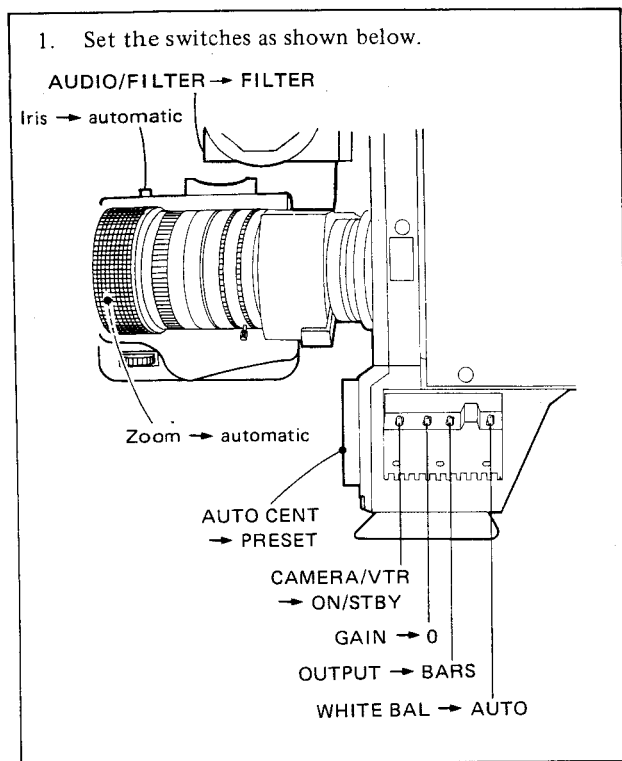
5. Set the time code or the user bit, if necessary.

6. Insert a cassette tape.



- Check that the safety tab on the bottom of the cassette is in place.

2. Check the camera



2. Adjust the position of the viewfinder.

3. Check that the color bars appear on the viewfinder.

4. Turn the BRIGHT control and CONTR control on the viewfinder so that the color bars on the viewfinder screen can be seen clearly.

5. Turn the FILTER selector 1 → 2 → 3 → 4 and check that the filter indicator in the viewfinder lights in turn according to the position of the FILTER selector.

6. Set the OUTPUT selector to CAM.

7. Point the camera to the appropriate subject.

8. Turn the focus ring so that the subject is in the focus. Check that the subject appears on the viewfinder screen.

9. Check the motorized zoom function.
With the motorized zoom knob, the picture changes from wide-angle to telephoto and vice versa.

10. Set the zoom in the manual mode.

11. Check the manual zoom function.
Turn the manual zoom lever and check that the picture changes from wide-angle to telephoto and vice versa.

12. Set the zoom in the automatic mode.

13. Point the subject with different brightness and check that the auto iris mechanism functions. *

14. Set the iris in the manual mode.

15. Turn the iris ring and check that iris is adjusted.

16. Press and hold down the instant auto button to temporarily switch to automatic iris adjustment. Point the camera at subjects under different brightness levels to check the adjustment.

17. Set the iris in the automatic mode.

18. Set the GAIN selector to 9 and to 18.
Check that the iris closes and that the GAIN UP indicator in the viewfinder lights.

19. Set the GAIN selector to 0.

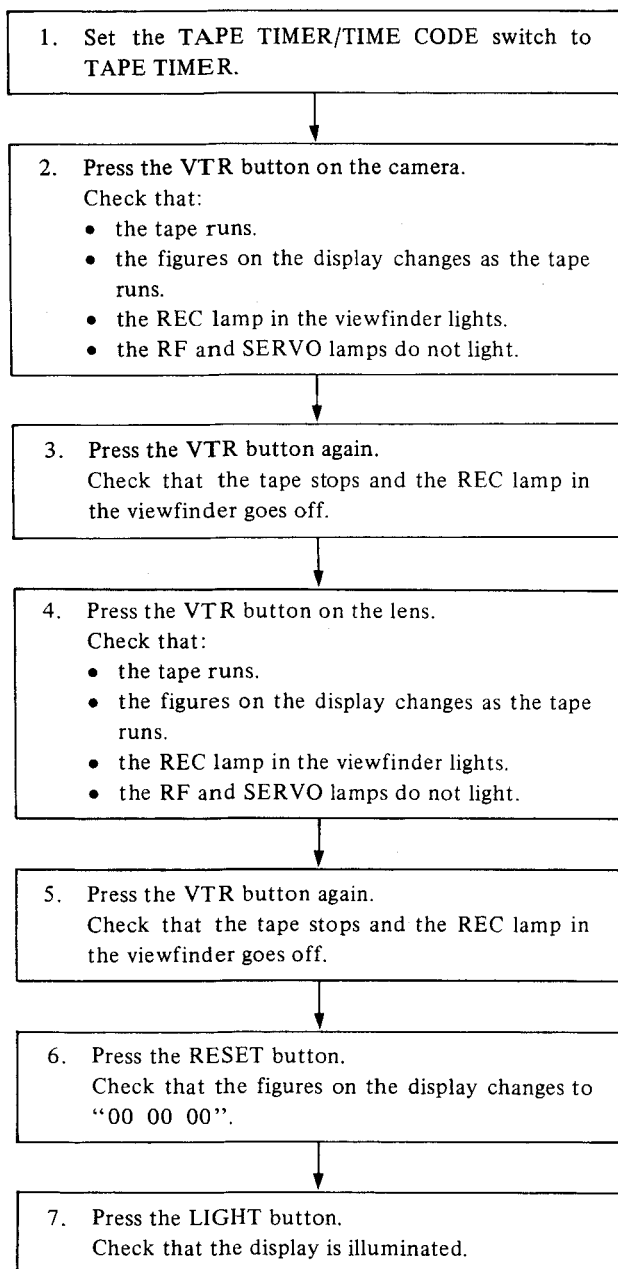
20. Set the AUDIO/FILTER switch to AUDIO.
Check that the FILTER/AUDIO indicator shows the audio level.

* When a lens with a 6-pin connector is used, hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)

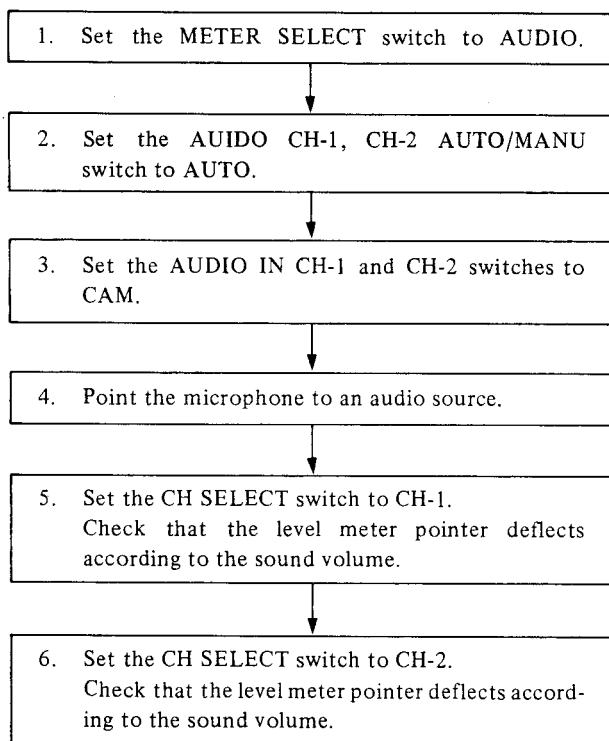
3. Check the VTR

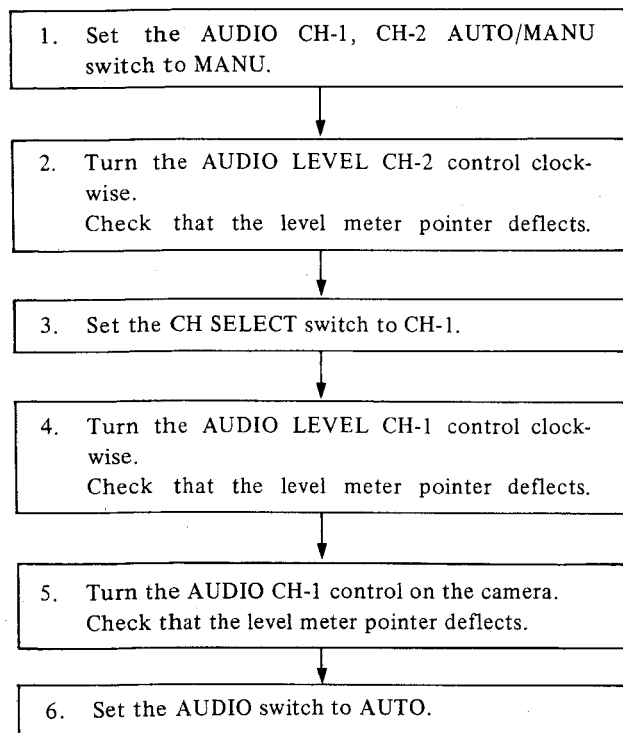
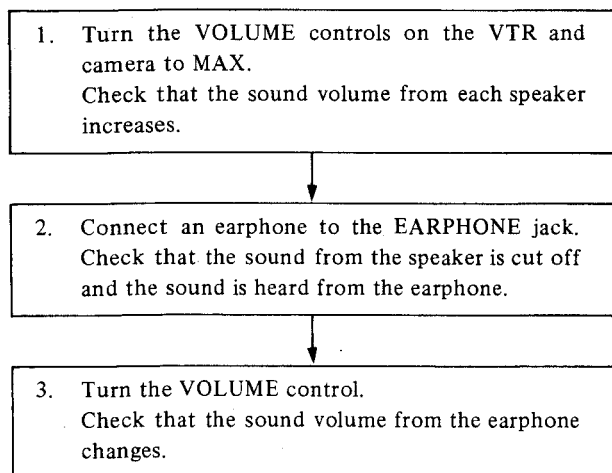
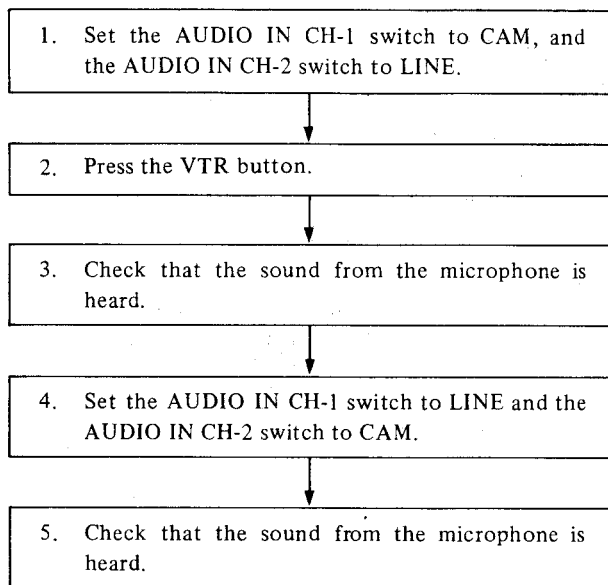
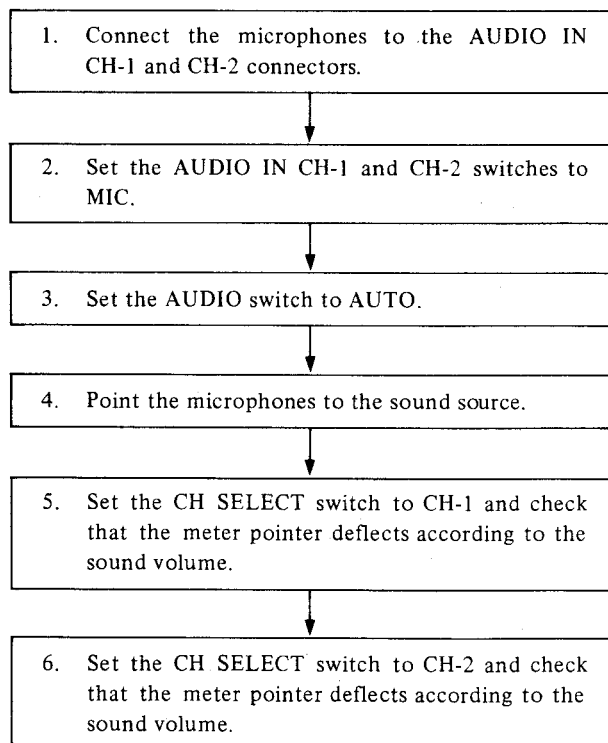
Perform the 3-1. through the 3-5. continuously.

3-1. Check the tape transport



3-2. Check the automatic audio recording level adjustment

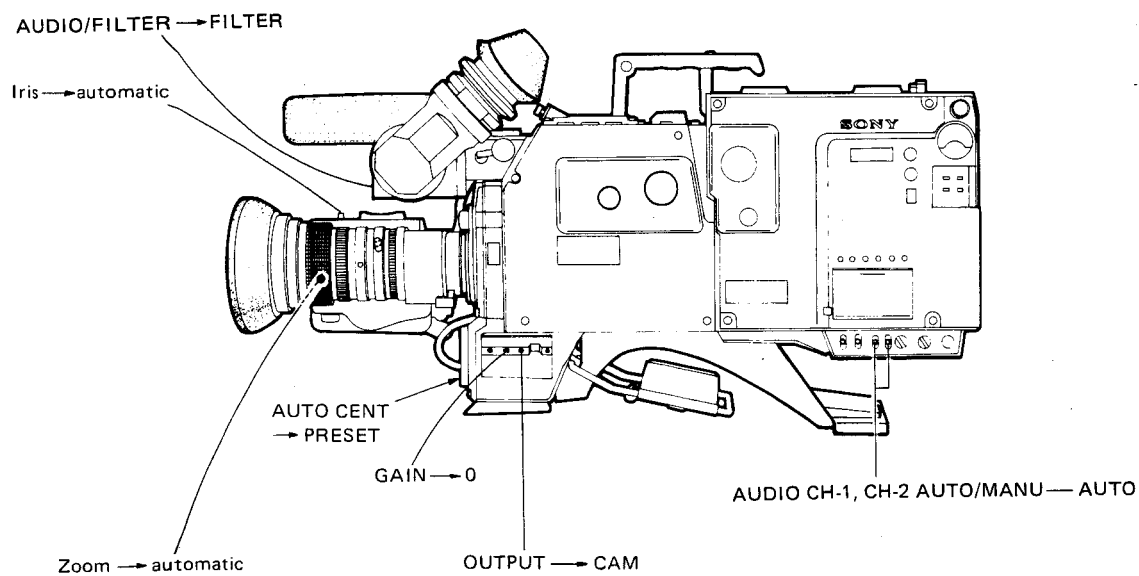


3-3. Check the manual audio recording level adjustment**3-4. Check the earphone and speaker****3-5. Check the audio confidence function****3-6. Check the external microphones**

1-12-4. Operation

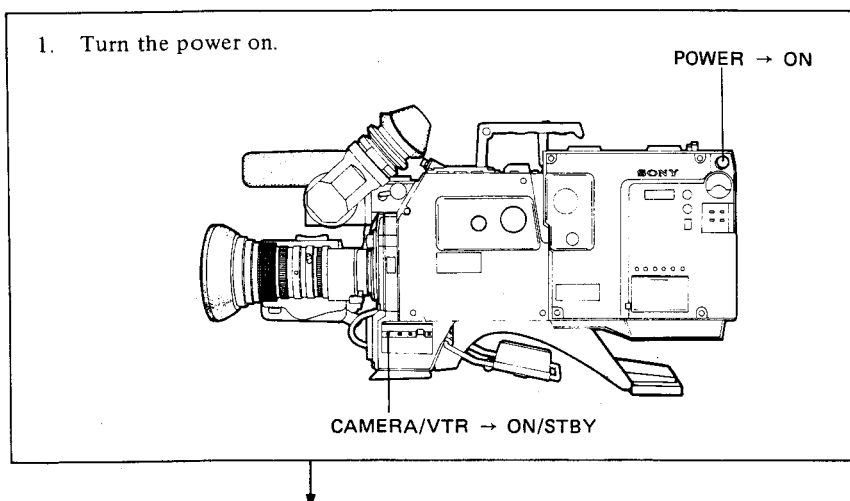
1. Preparation

Before starting operation, check that the switches are set correctly as shown below.



2. Recording

1. Turn the power on.



2. Insert a cassette tape.

3. Select the appropriate filter according to the lighting conditions.

4. Adjust the white balance and the black balance.

When the white balance and the black balance value has been memorized
Set the WHITE BAL switch to AUTO.

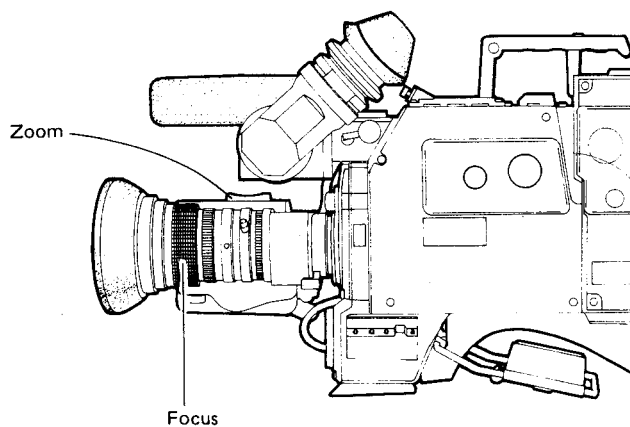
When the white balance value is not memorized but you want to start recording quickly

Set the WHITE BAL switch to PRESET and set the AUTO W/B BAL switch to BLK. The white balance and the black balance at 3200°K is obtained.

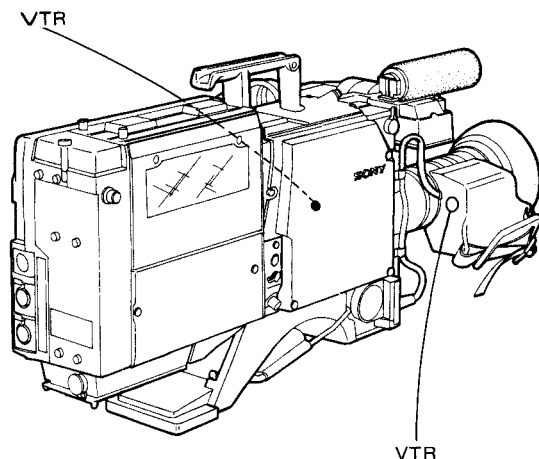
To adjust the white balance and the black balance

1. Set the WHITE BAL switch to AUTO.
 2. Zoom up the white subject.
 3. Set the AUTO W/B BAL switch to BLK. When the W/B CENT indicator lights, the black balance is adjusted.
 4. Set the AUTO W/B BAL switch to WHT and check that the W/B CENT indicator lights.
- For details on the white balance and black balance adjustments, see "1-6. Adjustments".

5. Point the camera to the subject and adjust the focus and zoom.



6. Press the VTR button on the lens or on the camera and the recording begins.



The REC lamp in the viewfinder lights during recording.

7. To stop recording, press the VTR button again. The VTR is in the standby mode and the REC lamp goes off.

Manual recording level adjustment

The audio recording level can be adjusted manually with the method as shown below. When the BVV-1PS with the serial No. 50000 and higher or the BVV-1APS is used, the audio channel-1 can be adjusted both on the VTR and on the camera.

1. Set the AUDIO IN switches for both audio channels as follows:
 - When the built-in microphone is used → CAM
 - When an external microphone is used → MIC
 - When a line input signal is recorded → LINE
2. Set the AUDIO CH-1, CH-2 AUTO/MANU switches to MANU.
3. Adjust the level of channel 1 as follows.
 - 1) Turn the AUDIO LEVEL CH-1 control on the VTR fully clockwise.
 - 2) Set the AUDIO/FILTER switch on the camera to AUDIO.
 - 3) Turn the AUDIO CH-1 control on the camera so that the 1 through 4 lamps of the FILTER/AUDIO indicator is usually lit and the red indicator is momentarily lit at the maximum input.
 - The maximum attenuation of the AUDIO CH-1 control on the camera is approximately 20 dB. If an appropriate level cannot be obtained within this range, adjust the level by using the AUDIO LEVEL CH-1 control on the VTR.
 - The FILTER/AUDIO indicator in the viewfinder shows the following level responding to the peak signal.

| | | | | |
|---|---|---|---|--|
| 1 | 2 | 3 | 4 | |
|---|---|---|---|--|

Level meter indication (VU) -6 -4 0 +3+6
4. The level of the channel 2 is adjusted by the AUDIO LEVEL CH-2 control on the VTR so that the point of the level meter deflects to 0 VU at the maximum input.

1-12-5. Warning System

The indicators and lamps in the viewfinder, the warning lamps on the VTR and the alarm from the speaker or the earphone serve to advise the operator of the following operational states.

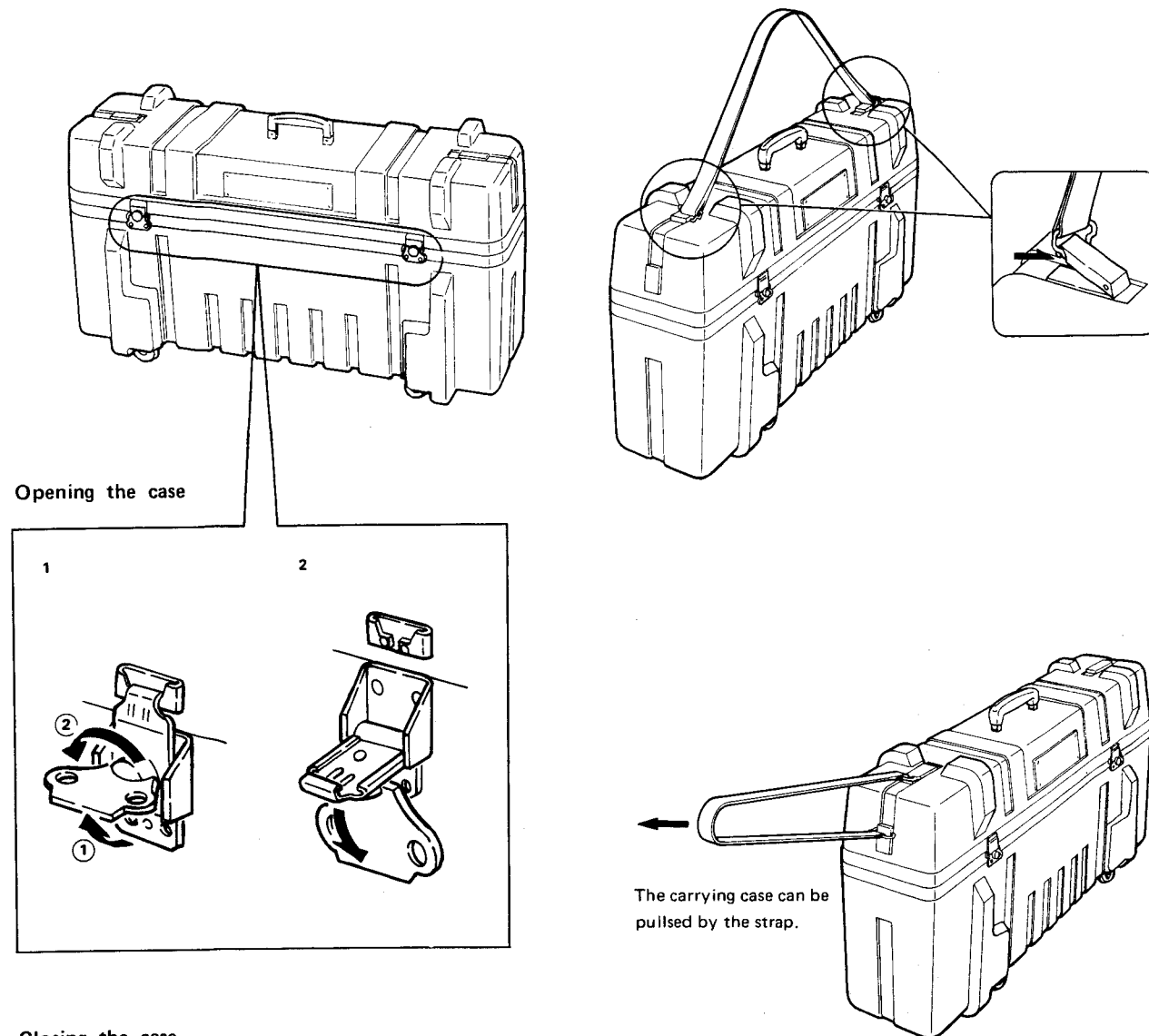
| Cause | Lamps in viewfinder | | | Lamps on VTR | | | | | | Alarm sound | VTR Operation and Correction |
|---|---------------------|---------|------|--------------|-------|-------|-------|----------|---------|-------------|--|
| | REC | TAPE 5M | BATT | RF | SERVO | HUMID | SLACK | TAPE END | BATTERY | | |
| Tape nearly at its end | | | | | | | | | | W W | Recording continues. |
| End of tape | | | | | | | | | | ~~~~~ | Recording stops. Change cassettes. |
| Battery near end | | | | | | | | | | W W | Recording continues. |
| Battery end | | | | | | | | | | ~~~~~ | Recording stops. Change batteries. |
| Something wrong in the recording system | | | | | | | | | | W W W | Recording continues but may not be performed correctly. Head-cleaning is required. (For details on head-cleaning, see the instruction manual of the BVV-1PS/BVV-1APS.) |
| Irregularity in servo | | | | | | | | | | W W W | Recording continues but may not be performed correctly. Turn off the power and consult your Sony dealer. The lamp may momentarily blink when the tape starts running, but this is not a problem. |
| Moisture condensation | | | | | | | | | | W W W | Recording continues as long as the tape does not stick to the head drum. If this happens, recording will stop and the tape will be unthreaded. |
| Slack tape | | | | | | | | | | ~~~~~ | Recording stops. The POWER switch and the EJECT button do not function. Remove the cassette manually referring to the section 2 of the BVV-1PS/BVV-1APS's instruction manual. |

| Marks | | | |
|-------|----------------|----------------|-------------------------------|
| Lamps | | Sound of alarm | |
| | Blinks in 1 Hz | W W | In 1 kHz, 1 second interval |
| | Blinks in 4 Hz | W W W | In 1 kHz, 1/4 second interval |
| | Lights up | ~~~~~ | Continuous sound |

1-12-6. How to use the carrying case

For packing, refer to "1-12-8. Packing of the BVW-30AP".

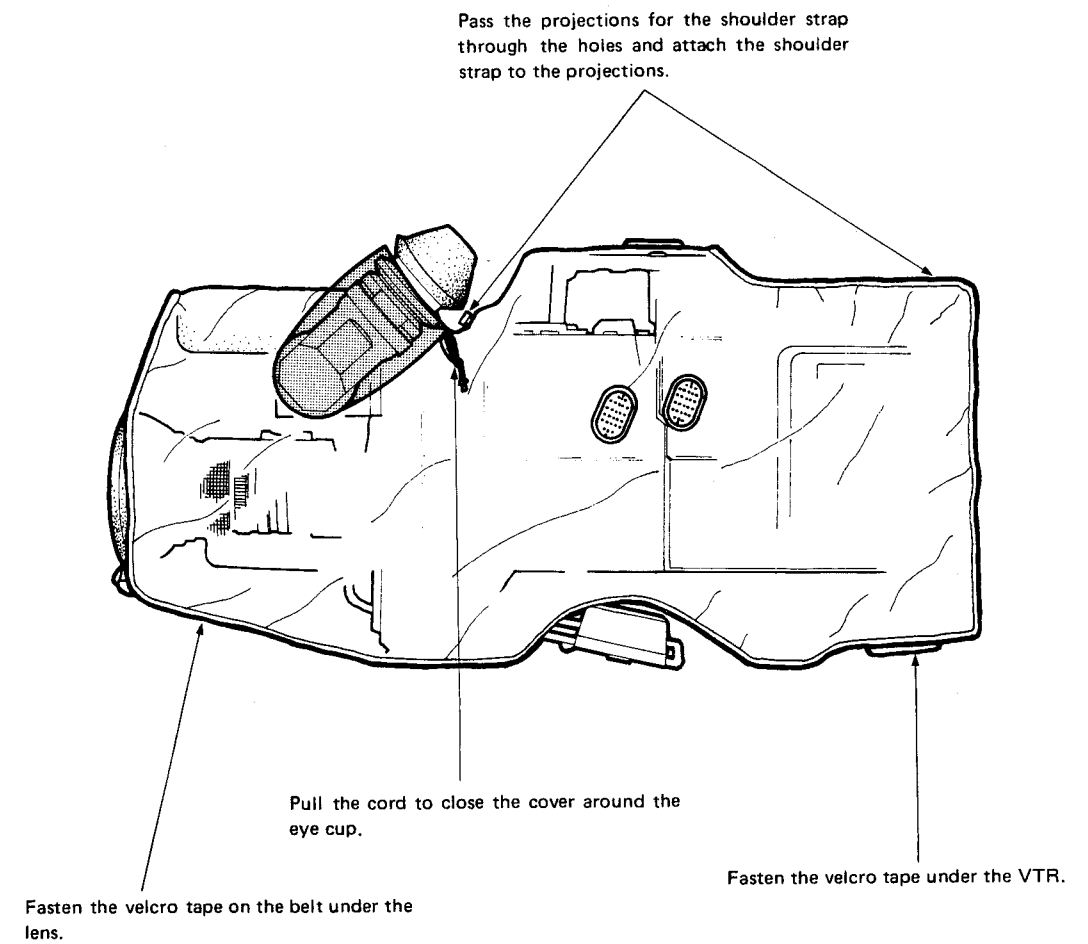
Attaching the shoulder strap for the carrying case



Notes

- Avoid strong vibration or shock.
- Do not stand on the carrying case.

1-12-7. Attaching the rain cover



TEIL 1

BETRIEB

Die BVP-30AP ist eine leichte und kompakte Farb-Video-Kamera. Sie besitzt drei 2/3"-Plumbicon* Aufnahme-
röhren mit magnetischer Fokussierung und statischer Ablenkung. Durch Zusammenschluß mit
dem portablen Videorecorder BVV-1PS/BVV-1APS erhält man das Betacam System BVW-30AP, das sich
für elektronische Berichterstattung (EB) eignet und für dessen Bedienung nur ein Mann erforderlich ist.

* PLUMBICON ist ein eingetragenes Warenzeichen von
N.V. PHILIPS.

1-1. BESONDERE MERKMALE

Hohe Bildqualität

Die Aufnahmeröhren mit magnetischer Fokussierung und statischer Ablenkung liefern aufgrund der folgenden Merkmale eine ausgezeichnete Bildqualität.

- Hohe Auflösung über den gesamten Bildschirm.
- Ablenkungsverzerrungen sind gering und die Farbdeckung kann präzise eingestellt werden.
- Plumbicon® Röhren mit Dioden-Kanonen und hoher Betriebsspannung garantieren scharfe Bildwiedergabe.
- Das Signal wird über Stiftanschlüsse herausgeführt und die erste Stufe mit FET-Transistor ist in die Spule eingebaut, so daß sich ein hoher Signal-Rauschabstand ergibt.

Kompakt und leicht

Dank dem leichten, dabei aber stabilen Gehäuse aus Magnesium-Guß und der kompakten Gesamtauslegung ist die BVP-30AP äußerst bequem zu handhaben.

Hohe Empfindlichkeit

Der Videoausgangspegel kann um 9 dB oder 18 dB angehoben werden. Selbst bei 18 dB ist noch eine gute Bildqualität gewährleistet, so daß Aufnahmen auch unter schlechten Lichtverhältnissen möglich ist.

Automatischer Weiß- und Schwarzabgleich sowie Weißabgleich-Voreinstellung

Bei jeder Filterposition kann ein automatischer Weiß- und Schwarzabgleich durchgeführt und der eingestellte Wert im Memory abgespeichert werden. Die Speicherung bleibt auch dann noch erhalten, wenn die Stromzufuhr abgeschaltet wird. Wird der WHITE BAL-Schalter auf PRESET gestellt, erhält man einen für 3200°K voreingestellten Weißabgleich.

Automatische Zentrierung

Dank einer neuentwickelten automatischen Zentriereinstellung kann die Zentrierung bequem ohne Verwendung eines Zentriertestbildes durchgeführt werden. Der eingestellte Wert wird im Memory gespeichert und bleibt auch dann noch erhalten, wenn die Stromzufuhr abgeschaltet wird.

Automatische Strahloptimierung

Durch die automatische Strahloptimierung kann die Kamera die 8-fache Normallichtmenge verarbeiten, ohne daß ein Überstrahl- oder Nachzieheffekt entsteht.

Dynamische Strahlfokussierung

Der Schaltkreis zur dynamischen Strahlfokussierung verbessert die Auflösung über die gesamte Bildfläche.

Großer Dynamikbereich

Dank einem DCC-Schaltkreis (Dynamic Contrast Control) kann die BVP-30AP bis zum Sechsfachen der normalen Lichtstärke verarbeiten.

Warnsystem

Arbeitet der Videorecorder nicht einwandfrei, ist das Band zu Ende oder sind die Batterien erschöpft, so wird dies durch einen Warnindikator im Sucher angezeigt. Bei Zusammenschluß von BVP-30AP und BVV-1PS/BVV-1APS ist außerdem ein Warnton zu hören, und die noch verbleibende Aufnahmezeit wird in den Sucher eingeblendet.

Automatische Schließung des Objektivs

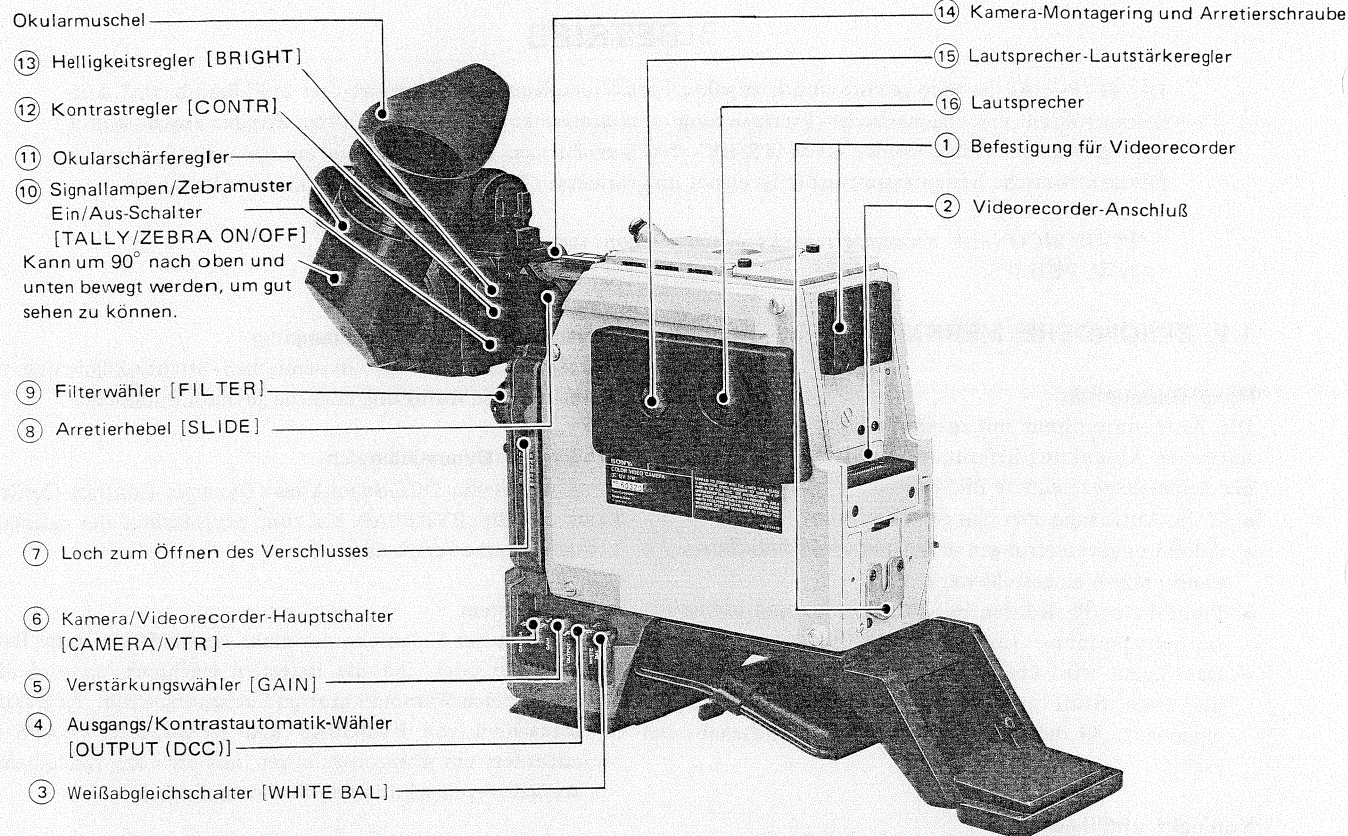
Zum Schutz der Aufnahmeröhren wird das Objektiv in folgenden Fällen geschlossen.

- Wenn der CAMERA/VTR-Schalter auf PREHEAT steht.
- Wenn der OUTPUT-Schalter auf BARS steht.
- Wenn der automatische Schwarzabgleich durchgeführt wird.
- Wenn ein Testsignal herausgeführt wird.
- Wenn das Band zurückgespult wird.

Weitere Merkmale der BVP-30AP:

- Geringe Leistungsaufnahme
- Bei Betrieb mit interner Synchronisation wird ein farbträgerverkoppelter Halbbildimpuls herausgeführt.
- Generatorverkopplung bei Verwendung des CA-3 oder CA-30P Kameraadapters
- 2-Zeilen Schärfenanhebung
- Herausziehbare Sonnenblende
- Einmischen eines Silhouettensignals
- Split-Farbbalkengenerator
- Mikrofon mit ausgeprägter Richtwirkung
- Automatische Blendeneinstellung
- Videopegel-Anzeige
- Einstellmöglichkeit des Tonaufnahmepegels von Tonkanal 1
- Zebrawissen-Ein/Aus-Schalter
- Eingebauter Monitorlautsprecher
- Anbringung eines Außenmikrofons möglich
- Sucher mit hoher Auflösung

1-2. LAGE UND FUNKTION DER TEILE



1 Befestigung für Videorecorder

Hier wird der tragbare Videorecorder BVV-1PS/BVV-1APS oder der Kameraadapter CA-3 oder CA-30 usw. angesetzt.

2 Videorecorderanschluß [50polig]

Der 50-polige Anschluß des Videorecorders BVV-1PS/BVV-1APS oder des Kameraadapters CA-3 oder CA-30P usw. wird hier angeschlossen.

3 Weißabgleichschalter [WHITE BAL]

PRESET: In der Stellung „1“ des FILTER-Wählers ⑨ erhält man einen werkseitig voreingestellten Weißabgleich auf 3200°K (Farbtemperatur einer Jodlampe). Verwenden Sie diese Position, wenn Sie keine Zeit zum Einstellen des Weißabgleichs haben.

AUTO: Im allgemeinen wird diese Position gewählt. In der Stellung WHT des AUTO W/B BAL-Schalters ②⑤ wird der Weißabgleich automatisch eingestellt und gespeichert. In der Stellung AUTO des Weißabgleichschalters erhalten Sie dann immer diesen gespeicherten Wert.

4 Ausgangs/Kontrastautomatik-Wähler [OUTPUT (DCC)]

Zur Wahl des am VTR-Anschluß 2 oder TEST OUT-Anschluß ②② anliegenden und zum Sucher geführten Signals.

CAM: Für das von der Kamera aufgenommene Signal. In der Stellung DCC ON arbeitet der eingebaute DCC-Schaltkreis (Dynamic Contrast Control). Ist keine Kontrastautomatik erwünscht, stellen Sie den Wähler auf DCC OFF.

BARS (DCC OFF): Für das Farbbalkensignal. Wählen Sie diese Position, um die Farbbalken zur Einstellung des Video-Monitors zu verwenden oder um die Farbbalken aufzunehmen.

5 Verstärkungswähler [GAIN]

Dieser Wähler wird normalerweise auf „0“ eingestellt. Wird er auf „9“ oder „18“ gestellt, erhöht sich der Video-Ausgangspegel jeweils um 9 bzw. 18 dB.

6 Kamera/Videorecorder-Hauptschalter [CAMERA/VTR]

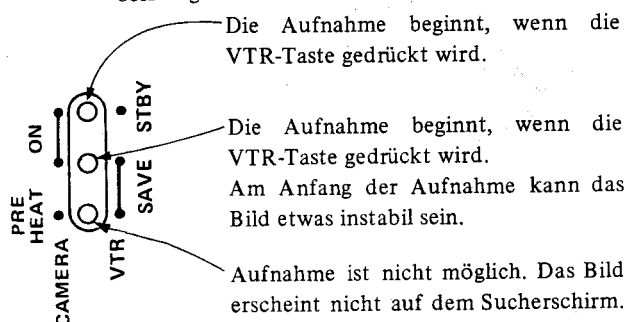
Mit diesem Schalter wird der Strom zur Kamera und zum Videorecorder ein- und ausgeschaltet.

CAMERA-PREHEAT: Aufnahmeröhre und Heizung der Sucher-Bildröhre werden mit Strom versorgt; das Bild erscheint jedoch nicht auf dem Sucherschirm. In dieser Schalterstellung wird weniger Strom verbraucht.

CAMERA-ON: Alle Teile der Kamera werden mit Strom versorgt, und das Bild erscheint auf dem Sucherschirm.

VTR-SAVE: Die Kopftrommel kommt zum Stillstand, und das Band wird freigegeben. Weil in dieser Schalterstellung weniger Strom verbraucht wird, ist eine längere Aufnahmezeit möglich.

VTR-STBY: Die Kopftrommel beginnt sich zu drehen, und das Band wird um die Kopftrommel geschlungen.



7 Loch zum Öffnen des Verschlusses

Wenn sich der Verschuß bei normalem Betrieb nicht öffnet, so kann er durch Durchstoßen der Öffnung zwangsgeöffnet werden. Überprüfen Sie jedoch zuvor die Stromversorgung und die Anschlüsse. Öffnet sich der Verschuß danach immer noch nicht, nehmen Sie die Gummikappe ab und stoßen Sie mit einem dünnen Stab in das Loch. Der Verschuß öffnet sich dann. Versäumen Sie nicht, sich an Ihren Sony Händler zu wenden, wenn der Verschuß einmal auf diese Art geöffnet werden mußte.

8 Arretierhebel [SLIDE]

Zum Arretieren des Suchers stellen Sie den Hebel nach rechts und zum Lösen der Arretierung stellen Sie ihn nach links. Bei gelöster Arretierung kann der Sucher horizontal in die optimale Betriebsposition bewegt werden.

9 Filterwähler [FILTER]

Wählen Sie je nach Lichtverhältnissen den geeigneten Filter.

| Filternummer | Farbtemperatur | Lichtverhältnisse |
|--------------|--------------------|---|
| 1 | 3200°K | Sonnenaufgang, Sonnenuntergang, im Studio |
| 2 | 5600°K +1/4ND* | Im Freien bei gutem Wetter |
| 3 | 5600°K | Bei Regen oder bewölktem Himmel |
| 4 | 5600°K +1/16ND* | Schneelandschaft bei klarem Wetter, im Gebirge oder am Meer |

*ND: Graufilter

10 Signallampen/Zebromuster-Ein/Aus-Schalter [TALLY/ZEBRA ON/OFF]

ZEBRA: Das Zebromuster und die Signallampe werden eingeschaltet.

OFF: Das Zebromuster und die Signallampe werden ausgeschaltet.

ZEBRA: Das Zebromuster wird ein- und die Signallampe wird ausgeschaltet.

11 Okularscharfereglер

Zum Scharfstellen des Sucherbildes.

- Dieser Regler hat keinen Einfluß auf das Ausgangssignal von der Kamera.

12 Kontrastregler [CONTR]

Mit diesem Regler wird der Bildkontrast des Sucherschirms eingestellt.

- Dieser Regler hat keinen Einfluß auf das Ausgangssignal der Kamera.

13 Helligkeitsregler [BRIGHT]

Mit diesem Regler wird die Helligkeit des Sucherschirms eingestellt. Stellen Sie den Regler für helleres Bild nach rechts.

- Dieser Regler hat keinen Einfluß auf das Ausgangssignal der Kamera.

14 Kamera-Montagering und Arretierschraube

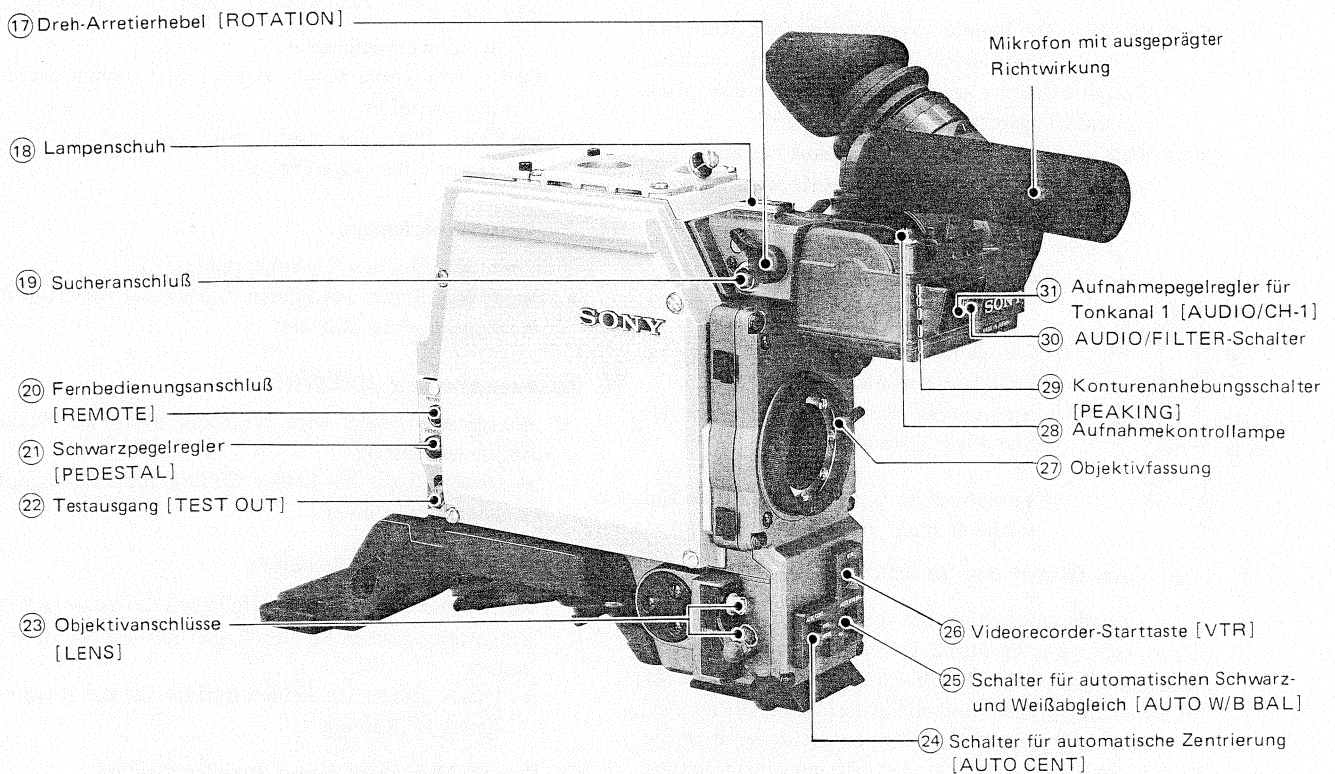
Nehmen Sie den Sucher normalerweise nicht von der Kamera ab. Ist ein Abnehmen jedoch nicht vermeidbar, so öffnen Sie die Arretierschraube und drehen Sie den Befestigungsring vom Objektiv aus gesehen nach rechts. Der Sucher kann dann abgezogen werden. Um den Sucher wieder anzubringen, drehen Sie den Befestigungsring nach links und drehen Sie zur Sicherung die Arretierschraube fest.

15 Lautsprecher-Lautstärkereglер

Zur Einstellung der Lautsprecher-Lautstärke. Durch Drehen nach rechts erhöht sich die Lautstärke. Wird der Regler ganz nach links gedreht, ist kein Ton zu hören.

16 Lautsprecher

Beim Aufnehmen kann gleichzeitig der Wiedergabeton (Mischsignal von Kanal 1 und 2) überwacht werden. In den anderen Betriebsarten ist der am Videorecorder gewählte E-zu-E-Ton zu hören. Außerdem ist auch ein Warnton entsprechend der Warnanzeigen zu hören.



17 Dreh-Arretierhebel [ROTATION]

Drehen Sie den Hebel zum Befestigen des Suchers nach unten. Durch Drehen nach links kann die Arretierung geöffnet und der Sucher gedreht werden.

18 Lampenschuh

Zum Anbringen einer Videolampe usw.

19 Sucheranschluß (12-pol)

Zum Anschluß des Suchers BVF-50.

- Wird ein Sucher an diesen Anschluß angeschlossen, so nehmen Sie auf jeden Fall den mitgelieferten 1,5"-Sucher von der Kamera ab. Schließen Sie nicht gleichzeitig zwei Sucher an.

20 Fernbedienungsanschluß [REMOTE] (6-pol)

Wird hier eine geeignete Einheit angeschlossen, so kann eine fernbediente Feineinstellung der Blende, des Schwarzpegels und der Verstärkung vorgenommen werden.

21 Schwarzpegelregler [PEDESTAL]

Mit diesem Regler wird der Schwarzpegel eingestellt.

22 Testausgang [TEST OUT] (BNC)

Hier liegen die folgenden, am ENC/REG-Schalter der eingebauten Leiterplatte gewählten Signale an.

REG: Die an den R/OFF/B- und G/OFF/-G-Schaltern gewählten R, G, B, R-G oder B-G Testsignale liegen an.

ENC: Das kodierte Videosignal liegt an. Verwenden Sie normalerweise diese Stellung.

23 Objektivanschlüsse [LENS] (6-pol, 12-pol)

Schließen Sie das Kabel des Objektivs an den 6-poligen bzw. 12-poligen Anschluß an.

Ihr Sony Händler gibt Ihnen gerne Auskunft darüber, welche Objektive verwendet werden können.

**②4 Schalter für automatische Zentrierung
[AUTO CENT]**

PRESET: Bei Nichtverwendung des gespeicherten Zentrierwertes.

MEMORY: Nach der automatischen Zentrierungseinstellung wird der abgespeicherte Zentrierwert verwendet.

START: Zur automatischen Zentrierungseinstellung ist die Kamera auf ein geeignetes Objekt auszurichten und der Schalter auf START zu stellen. Beim Loslassen kehrt der Schalter automatisch in die Mittelstellung zurück.

②5 Schalter für automatischen Schwarz- und Weißabgleich [AUTO W/B BAL]

WHT: Für automatischen Weißabgleich stellen Sie den WHITE BAL-Schalter ③ auf AUTO und diesen Schalter auf WHT. Der eingestellte Wert wird automatisch abgespeichert.

BLK: Für automatischen Schwarzabgleich und automatische Schwarzeinstellung stellen Sie diesen Schalter auf BLK. Der eingestellte Wert wird automatisch im Memory abgespeichert.

- Beim Loslassen kehrt der Schalter automatisch von der Stellung WHT oder BLK in die Mittelstellung zurück.

②6 Videorecorder-Starttaste [VTR]

Drücken Sie diese Taste, um mit der Aufnahme zu beginnen. Zum Beenden der Aufnahme drücken Sie dieselbe Taste erneut. Diese Taste hat dieselbe Funktion wie die VTR-Taste am Objektiv. Zum Betätigen dieser Taste entfernen Sie die Abdeckung.

②7 Objektivfassung (Spezial-Bajonettfassung)

Schließen Sie hier das Objektiv an.

②8 Aufnahmekontrollampe

Diese Lampe leuchtet oder blinkt, wenn die REC-Anzeige im Sucher leuchtet oder blinkt.

②9 Konturenanhebungsschalter [PEAKING]

Zur leichteren Schärfeneinstellung können mit diesem Schalter die Bildkonturen angehoben werden. Bei jedem Drücken dieses Schalters wird die Funktion abwechselnd ein- und ausgeschaltet.

③0 AUDIO/FILTER-Schalter*

AUDIO: Der Aufnahmepegel von Tonkanal 1 kann am AUDIO CH-1-Regler eingestellt werden. Die FILTER/AUDIO-Anzeige im Sucher zeigt den Tonaufnahmepegel an.

FILTER: An der FILTER/AUDIO-Anzeige im Sucher wird die am FILTER-Wähler eingestellte Filternummer angezeigt. Verwenden Sie stets diese Position, außer wenn die Kamera zusammen mit einem BVV-1PS der Serien-Nr. 50000 oder höher oder einem BVV-1APS verwendet wird.

**③1 Aufnahmepegelregler für Tonkanal 1
[AUDIO CH-1] ***

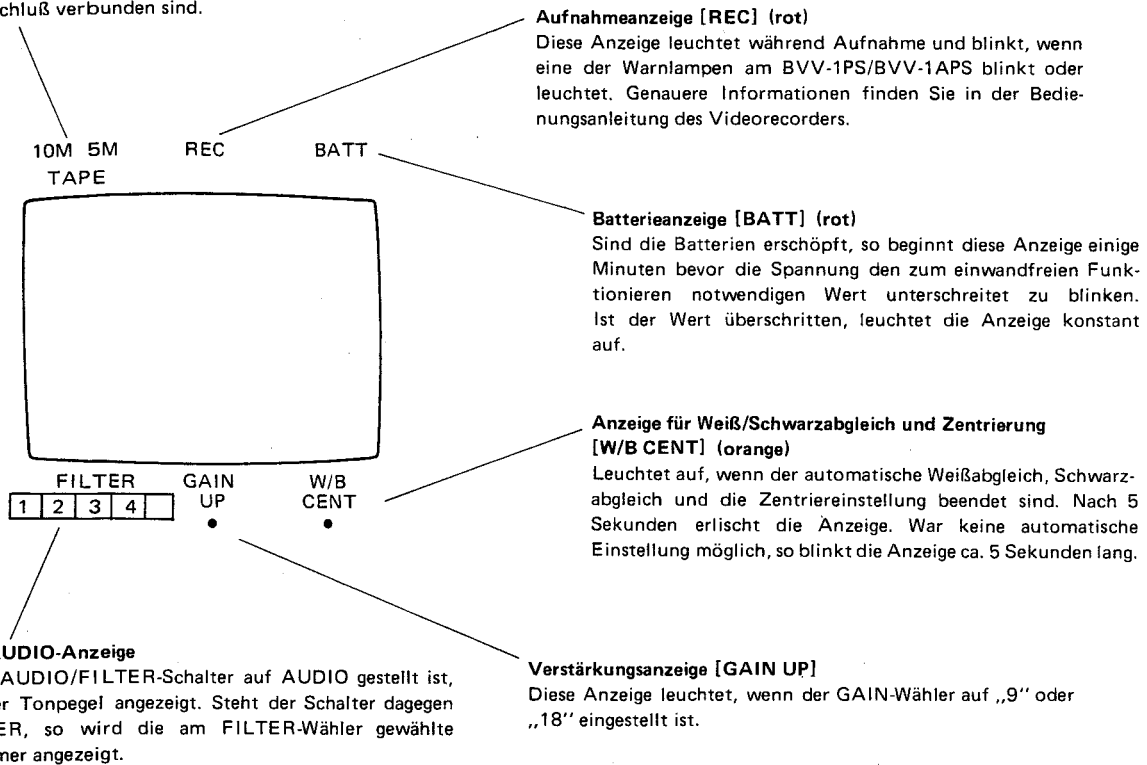
Wenn der AUDIO CH-1 MANU/AUTO-Wähler an der BVV-1PS/BVV-1APS auf MANU und der AUDIO/FILTER-Schalter ③0 auf AUDIO gestellt ist, so kann der Aufnahmepegel von Tonkanal 1 manuell eingestellt werden. Beobachten Sie bei dieser Einstellung die FILTER/AUDIO-Anzeige im Sucher.

- * Dieser Schalter und dieser Regler arbeiten nur, wenn die BVP-30AP zusammen mit einem BVV-1PS der Serien-Nr. 50000 oder höher oder mit einem BVV-1APS verwendet wird.

Anzeigen im Sucher

Anzeigen für verbleibende Aufnahmezeit

Zeigt das zur Aufnahme noch zur Verfügung stehende Band in Minuteneinheiten an. Die Anzeigen arbeiten nur, wenn BVP-30AP und BVV-1PS/BVV-1APS direkt über den 50-poligen Anschluß verbunden sind.



Bedeutung der Anzeige für verbleibende Aufnahmezeit

Diese Anzeigen arbeiten nur, wenn BVP-30AP und BVV-1PS/BVV-1APS direkt über die 50-poligen Anschlüsse verbunden sind.

| Noch zur Verfügung stehende Zeit (Minuten) | 20 | 15 | 10 | 5 | 2 | 0 |
|--|--------|-----|----|----|---|------|
| Anzeigen | 10M 5M | 10M | 5M | 5M | | |
| Aufnahmeanzeige | REC | | | | | REC* |

: Blinkt mit 1 Hz

* : Blinkt mit 4 Hz

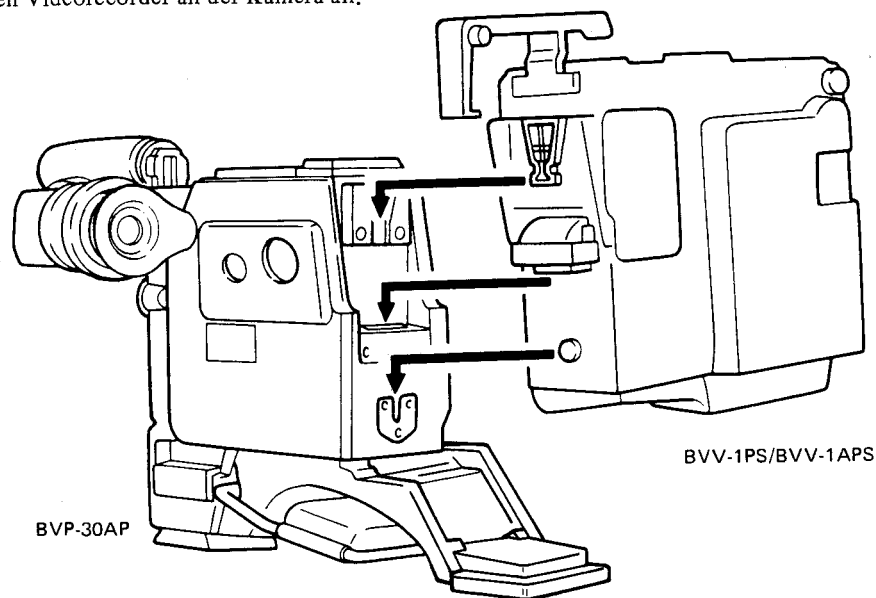
1-3. ZUSAMMENBAU

1-3-1. Zusammenschluß mit Videorecorder BVV-1PS/BVV-1APS/BVV-5PS

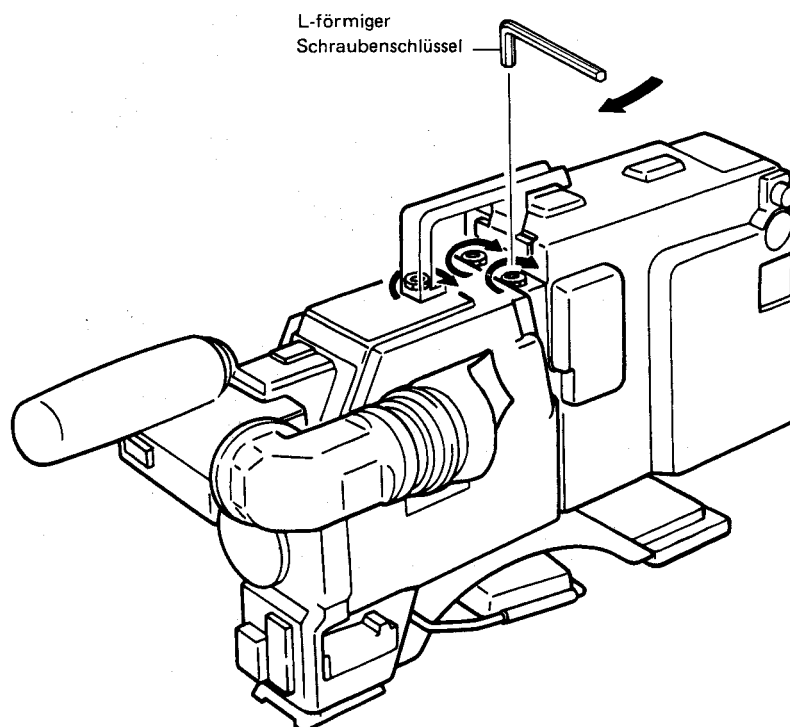
Im folgenden wird beispielhaft der Zusammenschluß der BVP-30AP mit dem tragbaren Videorecorder BVV-1PS/BVV-1APS/BVV-5PS gezeigt. Um die BVP-30AP zusammen mit einem anderen Gerät zu betreiben; lesen Sie bitte die mit dem jeweiligen Gerät mitgelieferte Bedienungsanleitung.

Bei Verwendung des Videorecorders BVV-1PS/BVV-1APS

1. Bringen Sie den Videorecorder an der Kamera an.

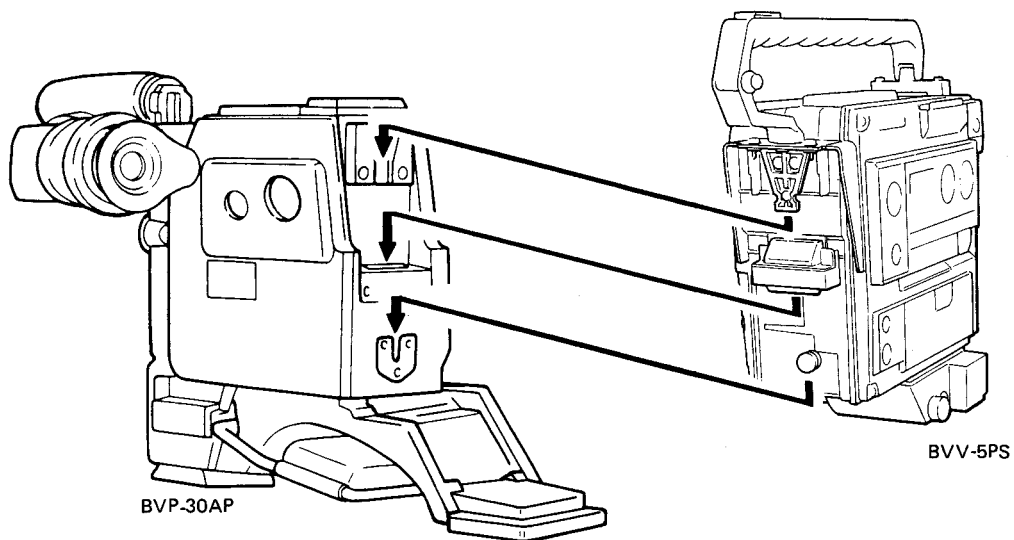


2. Ziehen Sie die Schrauben (beim Videorecorder mitgeliefert) fest.

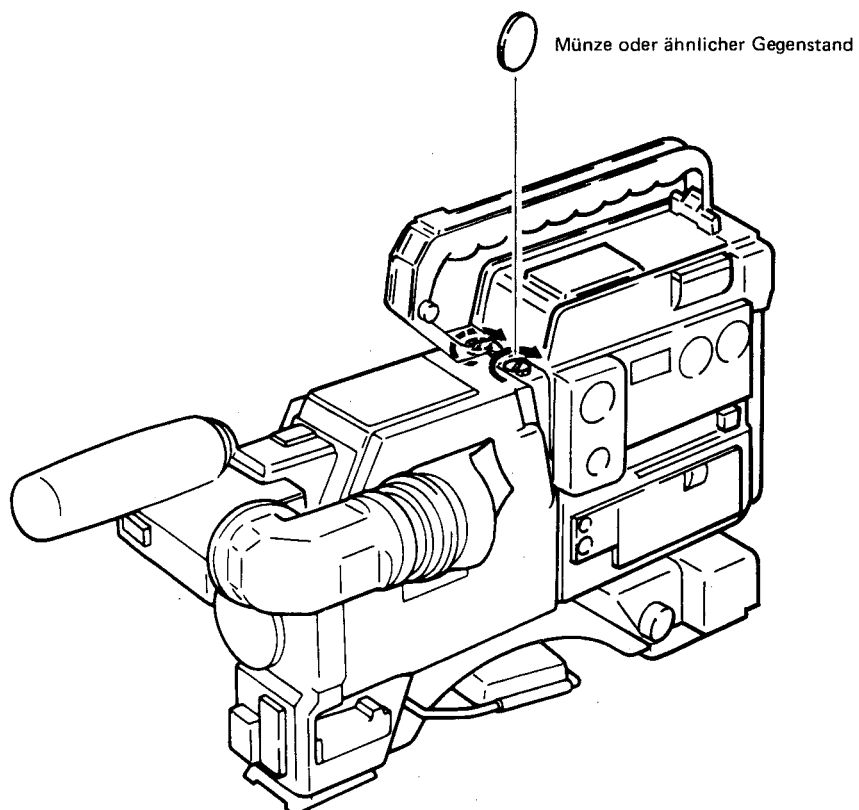


Bei Verwendung des Videorecorders BVV-5PS

1. Bringen Sie den Videorecorder an der Kamera an.

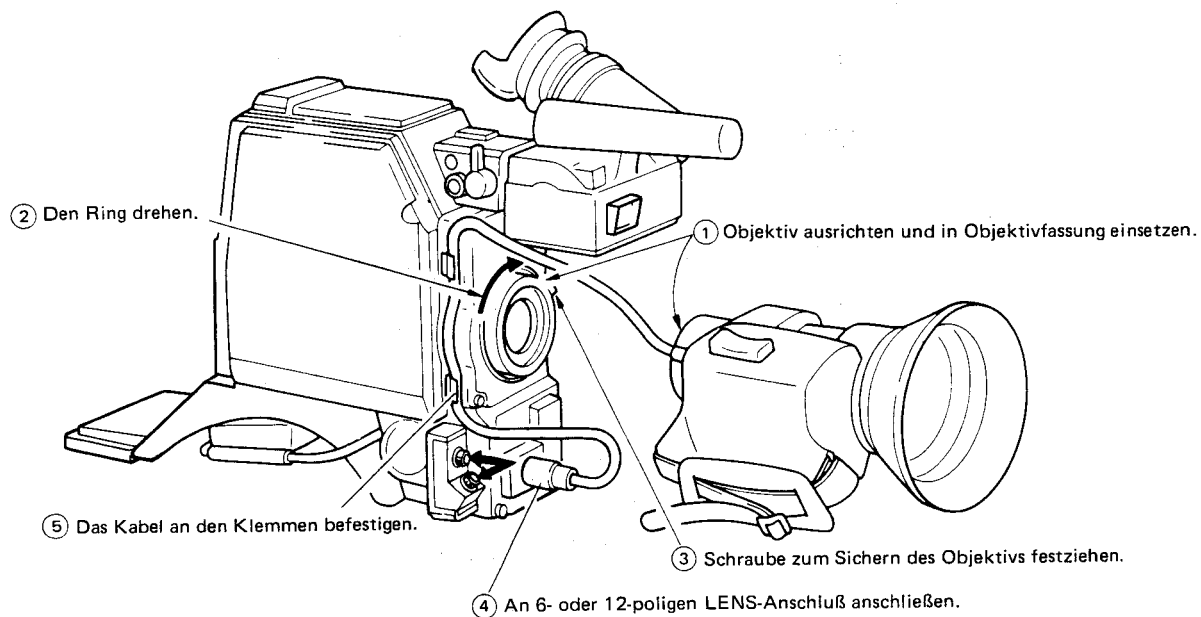


2. Ziehen Sie die Schrauben (beim Videorecorder mitgeliefert) fest.

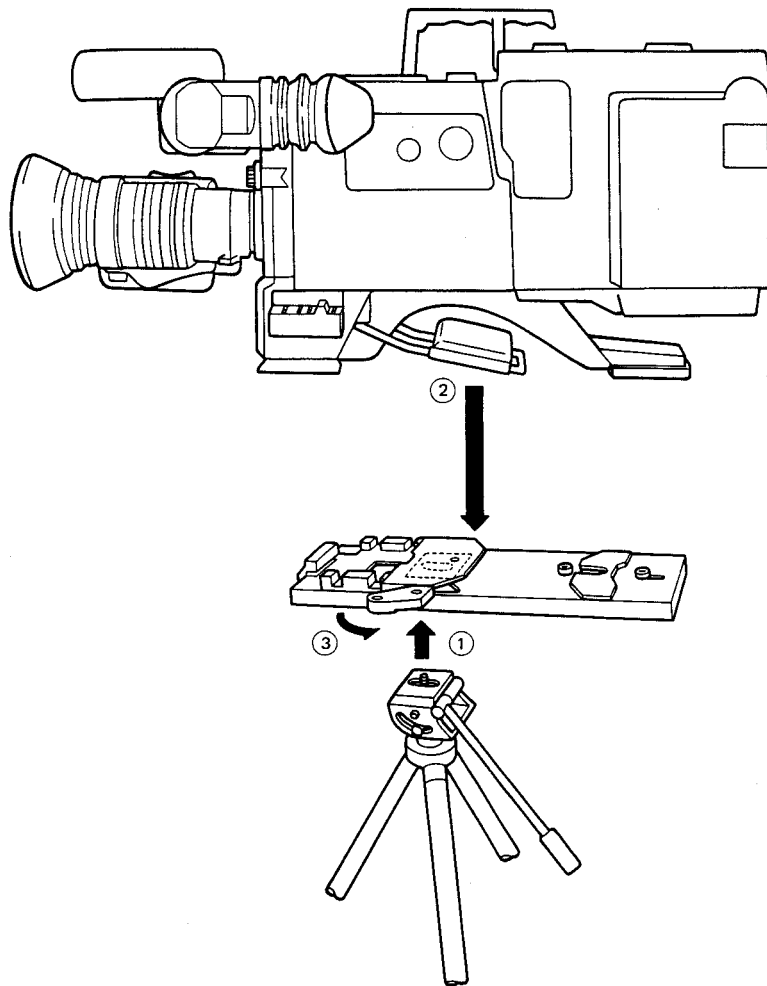


1-3-2. Anbringung des Objektivs

- Genauere Informationen über das Objektiv finden Sie in der mit dem Objektiv mitgelieferten Anleitung.



1-3-3. Anbringung eines Stativs



1 RETRO

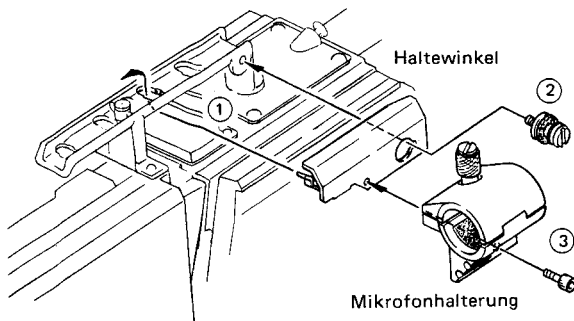


1-3-5. Anbringung eines Außenmikrofons

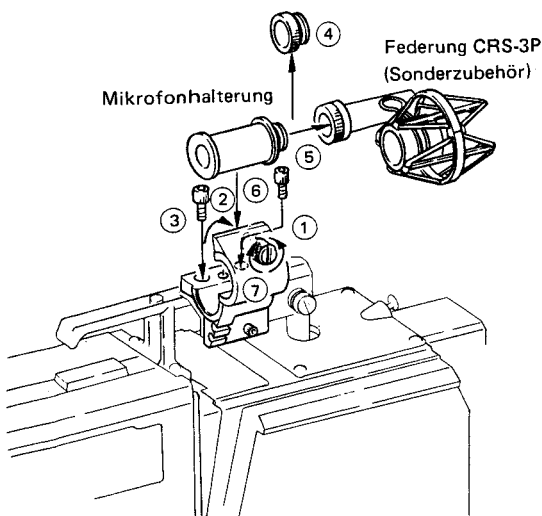
Bei Verwendung einer Federung

Wenn eine BVP-30AP mit dem BVV-1PS/BVV-1APS als eine BVW-30AP verwendet wird, bringen Sie ein Mikrofon mit Federung an der Kamera an, und keine störenden Vibrationen vom Videorecorder können zum Mikrofon gelangen.

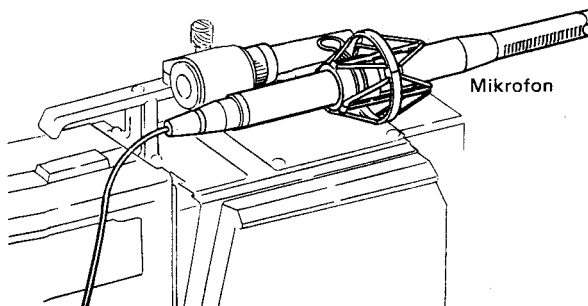
1. Bringen Sie Haltewinkel und Mikrofonhalterung jeweils mit einer Schraube am Griff an.



2. Befestigen Sie die Mikrofonhalterung, klemmen Sie die Federung an dem Halterohr fest und drehen Sie die Schraube zu.



3. Bringen Sie das Mikrofon an der Federung an.

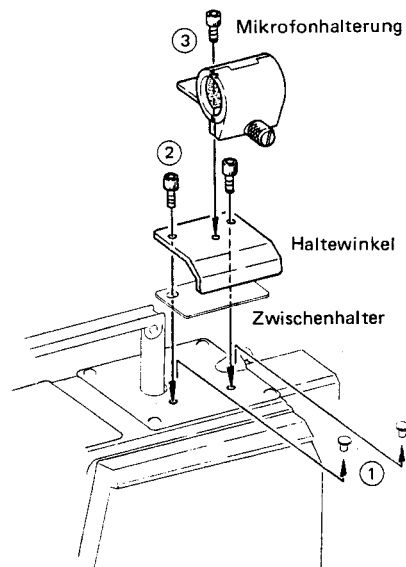


4. Stecken Sie das Mikrofonkabel in den MIC IN-Anschluß des Videorecorders.

Wenn keine Federung verwendet wird.

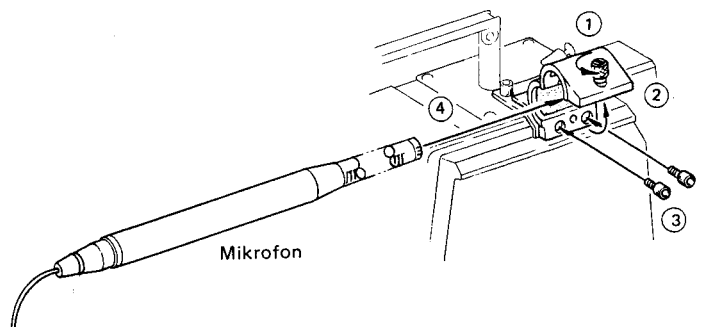
Diese Methode empfiehlt sich nur, wenn die BVP-30AP über den CA-3 oder CA-30P an den Videorecorder angeschlossen wird. Wenn die Kamera dagegen direkt mit einem BVV-1PS/BVV-1APS zusammengeschlossen wird, sollte auf jeden Fall die Federung verwendet werden, da sonst Laufgeräusche von dem Videorecorder mit aufgenommen werden.

1. Nehmen Sie die Kappen an der Kamera ab und bringen Sie Haltewinkel sowie Mikrofonhalterung an der Kamera an.



2. Befestigen Sie die Mikrofonhalterung, klemmen Sie das Mikrofon in der Mikrofonhalterung fest und drehen Sie die Schraube zu.

Ist der Mikrofondurchmesser zu klein, klemmen Sie das Mikrofon im mitgelieferten Adapter ein.



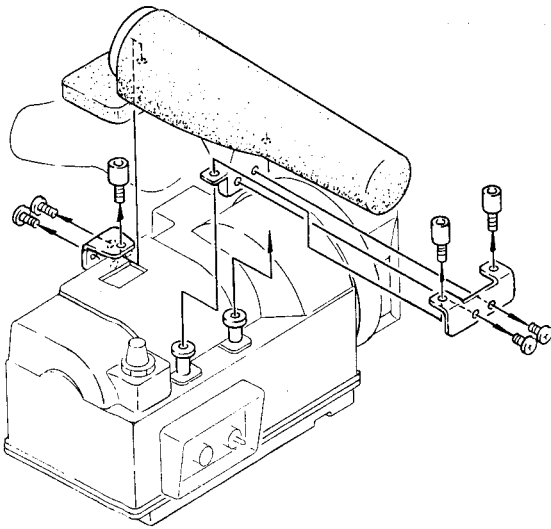
3. Stecken Sie das Mikrofonkabel in den MIC IN-Anschluß am Kameraadapter.

1.4. STROMVERSORGUNG

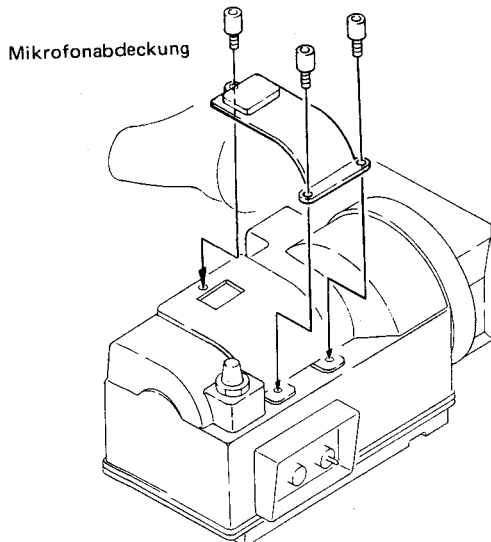
Abnehmen des eingebauten Mikrofons

Bei Anschluß eines Außenmikrofons wird das Signal vom eingebauten Mikrofon automatisch abgeschaltet. Das Mikrofon kann wie folgt beschrieben abgenommen werden. Bei abgenommenem Mikrofon bringen Sie die mitgelieferte Abdeckung an.

1. Das eingebaute Mikrofon und den Anschluß abnehmen.



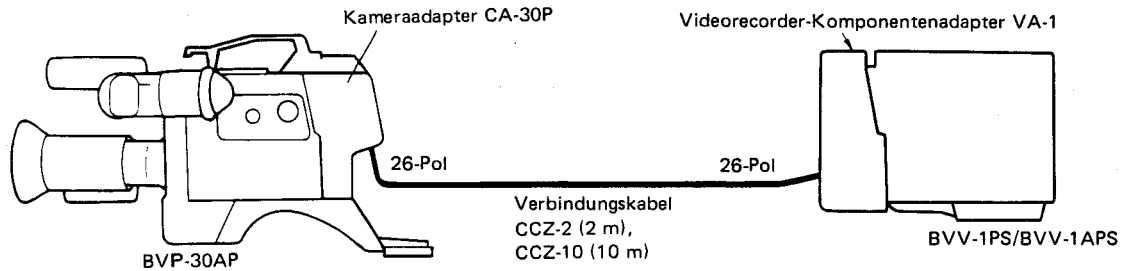
2. Die Mikrofonabdeckung anbringen.



1-5. ANSCHLÜSSE

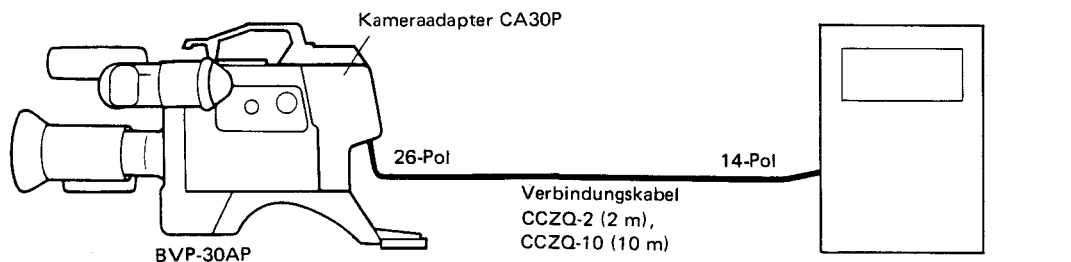
Außer dem direkten Zusammenschluß von BVP-30AP und BVV-1PS/BVV-1APS über die 50-poligen Anschlüsse kann die BVP-30AP auch folgendermaßen verwendet werden:

Anschluß des BVV-1PS/BVV-1APS unter Verwendung eines Verbindungskabels



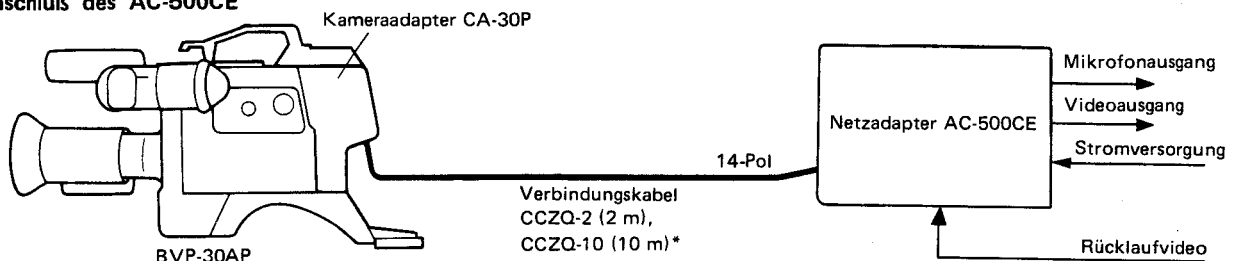
- Der FBAS/Komponenten-Adapter VA-1VP kann auf die gleiche Weise angeschlossen werden.

Anschluß eines herkömmlichen portablen Videorecorders



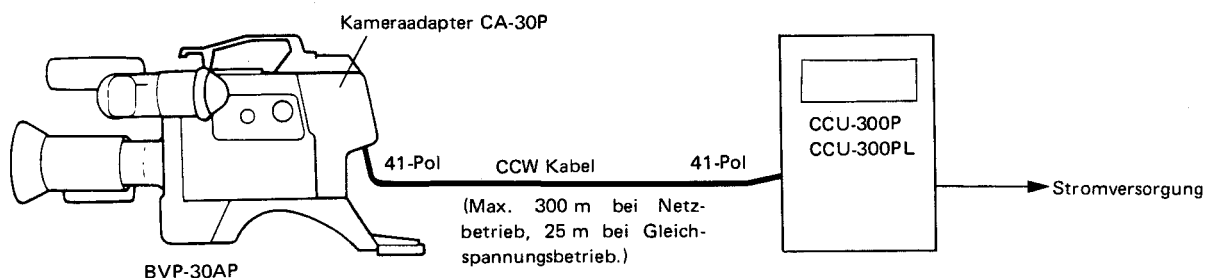
- Bei Versorgung der Kamera vom Videorecorder über ein Kamerakabel von mehr als 10 Metern Länge ist die optimale Bildqualität nicht mehr sichergestellt, sobald die BATT-Anzeige im Sucher zu blinken beginnt.
Portable Videorecorder BVU-50P, BVU-110P, BVH-500APS usw.

Anschluß des AC-500CE



- * Um ausschließlich den Versorgungsstrom an die Kamera zu leiten, verbinden Sie CA-30P und AC-500CE mit einem 4-poligen Kabel.
- Wenn der AC-500CE über ein 4-poliges Kabel mit dem Videorecorder verbunden wird, so wird der Videorecorder mit Strom versorgt.

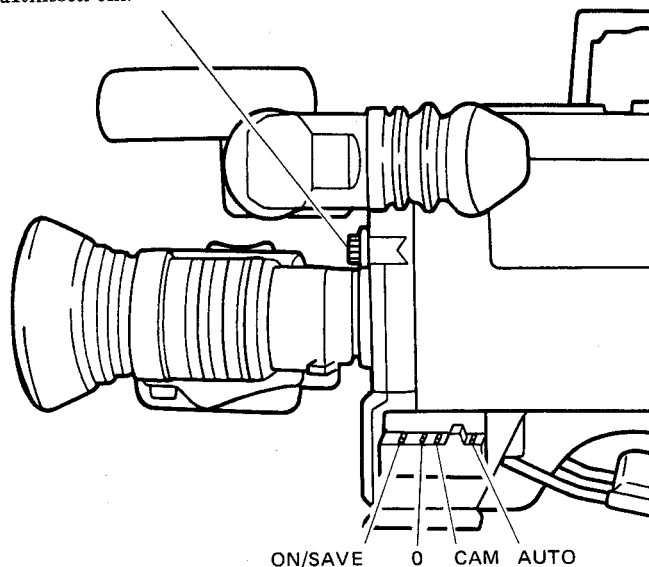
Anschluß einer CCU-300P/CCU-300PL



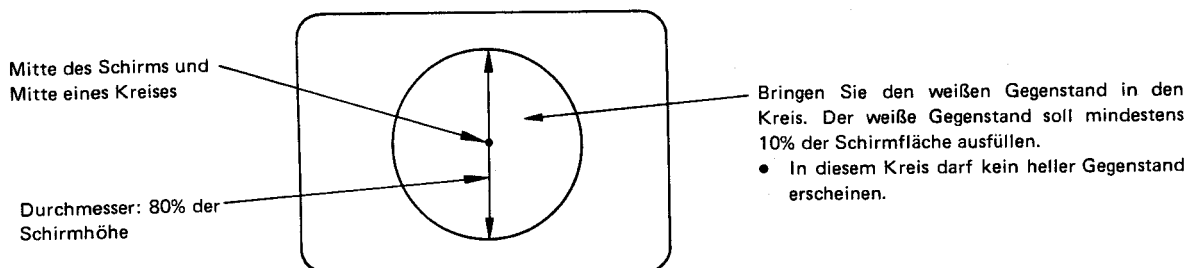
1-6. EINSTELLUNGEN

1-6-1. Weiß- und Schwarzabgleich

1. Stellen Sie den FILTER-Wähler entsprechend den Lichtverhältnissen ein.



2. Stellen Sie die Schalter folgendermaßen ein.
3. Zoomen Sie unter den gleichen Lichtverhältnissen wie bei der späteren Aufnahme auf das weiße Testbild. Statt des weißen Testbildes kann auch eine andere weiße Fläche wie z.B. ein weißes Tuch oder eine weiße Wand verwendet werden.
Folgende minimale weiße Fläche ist zur Einstellung erforderlich.



4. Ist eine Automatikblende vorhanden, so stellen Sie den Auto/Manuell-Schalter auf AUTO. Falls nicht, stellen Sie die Blende manuell ein.
5. Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Beim Loslassen kehrt der Schalter automatisch in die Mittelstellung zurück. Nach ca. 5 Sekunden ist der Schwarzabgleich automatisch durchgeführt, und die W/B CENT-Anzeige leuchtet im Sucher auf. Nach ca. 5 Sekunden erlischt die Anzeige wieder. Der eingestellte Wert wird abgespeichert.
 - Wenn der Schalter auf BLK gestellt wird, schließt sich der Verschuß.

6. Stellen Sie den AUTO W/B BAL-Schalter auf WHT. Nach ca. 1 Sekunde ist der Weißabgleich genau wie oben automatisch durchgeführt und der eingestellte Wert wird abgespeichert.

Weiß- und Schwarzabgleich sind damit beendet.

- Sobald die W/B CENT-Anzeige leuchtet, kann mit der nächsten Einstellung begonnen werden. Die Anzeige erlischt, wenn der Schalter in die andere Position gestellt wird, und leuchtet nach Beendigung der Einstellung wieder auf.
- Bei Verwendung eines Zoomobjektivs können Regelschwingungen auftreten. Ändern Sie in diesem Fall die Einstellung des AUTO IRIS GAIN-Reglers am Objektiv. (Genauere Informationen dazu finden Sie in der Bedienungsanleitung des Objektivs.)
- Wenn der AUTO W/B BAL-Schalter auf BLK gestellt wird, so ändert sich automatisch die Einstellung des GAIN-Wählers, und das Sucherbild ist möglicherweise gestört. Dies stellt jedoch kein Problem dar.
- Wenn sich die Beleuchtungsverhältnisse ändern, so führen Sie nur den Weißabgleich neu durch. Eine neue Einstellung des Schwarzabgleichs ist nicht erforderlich.

Wenn die W/B CENT-Anzeige blinkt

Überprüfen Sie, ob der richtige Filter gewählt wurde, und führen Sie Weiß- und Schwarzabgleich erneut durch.

Wenn der WHITE BAL-Schalter auf PRESET gestellt wird

In der Stellung „1“ des FILTER-Wählers erhält man einen Weißabgleich für 3200°K. Zum Schwarzabgleich ist lediglich der AUTO W/B BAL-Schalter auf BLK zu stellen.

Abspeichern der Weiß- und Schwarzabgleichwerte

Schwarz- und Weißabgleichwerte können in der BVP-30AP abgespeichert werden. Es sind vier Memories vorhanden, so daß für jeden Filter ein Weiß- und Schwarzabgleichwert abgespeichert werden kann. Die abgespeicherten Werte bleiben bis ca. eine Woche nach Abschalten der Stromzufuhr bzw., bis eine Neueinstellung durchgeführt wird, erhalten.

- Die eingebauten vier Weißabgleich-Speicher können auf einen Speicher reduziert werden. Öffnen Sie den Widerstand RS-20 an der internen AT-16-Leiterplatte.

1-6-2. Schwarzeinstellung

Mit dem AUTO W/B BAL-Schalter wird die Schwarzeinstellung automatisch mit dem Schwarzabgleich durchgeführt.

Zur manuellen Schwarzeinstellung verwenden Sie den Regler auf der eingebauten Platine. Genauere Informationen finden Sie im Teil 2.

1-6-3. Zentrierung

Die R-, G- und B-Aufnahmeröhren werden werkseitig zentriert, so daß normalerweise keine Einstellung erforderlich ist. Sollte dennoch eine Einstellung notwendig werden, so gehen Sie folgendermaßen vor.

Stellen Sie zunächst den Weißabgleich wie unter 1-6-1. beschrieben ein.

1. Stellen Sie den AUTO CENT-Schalter auf MEMORY.
2. Stellen Sie den Blenden-Auto/Manuell-Schalter am Objektiv auf AUTO. Die Blende sollte dabei nicht ganz geöffnet sein. Ist sie ganz geöffnet, so erhöhen Sie die Beleuchtungsstärke.
3. Nehmen Sie das mitgelieferte Testbild oder einen Gegenstand auf.

Verwendung des mitgelieferten Testbildes

Richten Sie die Kamera so aus, daß das mitgelieferte Testbild den gesamten Bildschirm füllt.

Ohne Verwendung des mitgelieferten Testbildes

Richten Sie die Kameraposition so aus, daß der Gegenstand in einem Kreis liegt, dessen Mittelpunkt sich in der Mitte des Bildschirms befindet und dessen Durchmesser 80% der Bildschirmhöhe beträgt.

- Verwenden Sie einen Gegenstand, der horizontale und vertikale Linien mit geeignetem Kontrast aufweist.
 - Wenn möglich verwenden Sie ein Schwarzweißbild, so daß die R-, G- und B-Pegel nahezu gleich sind. Ist der Gegenstand einfarbig oder ist eine der Farben sehr dunkel, so kann dies zu Zentrierungsfehlern führen.
 - Verwenden Sie keinen sich bewegenden Gegenstand, und bewegen Sie auch die Kamera nicht während der Einstellung.
 - Verwenden Sie keinen Gegenstand mit sehr dünnen Linien, also auch kein Testbild zur Farbdeckungseinstellung.
4. Stellen Sie den AUTO CENT-Schalter auf START. Beim Loslassen kehrt dieser Schalter automatisch in die MEMORY-Stellung zurück. Nach ca. 10 Sekunden ist die Zentrierung automatisch eingestellt, und im Sucher leuchtet die W/B CENT-Anzeige auf. Die Anzeige erlischt nach ca. 5 Sekunden wieder.
 - Während die Zentrierung durchgeführt wird, wird die Schärfenanhebung ausgeschaltet und die in einem Kreis mit einem Durchmesser von 70% der Bildschirmhöhe liegenden Kanten werden schärfer abgebildet.

5. Führen Sie den Weißabgleich erneut durch, da Zentrierungsfehler den Weißabgleich beeinflussen können.

Wenn die W/B CENT-Anzeige blinkt

Es wurde ein ungeeigneter Testgegenstand verwendet oder ...

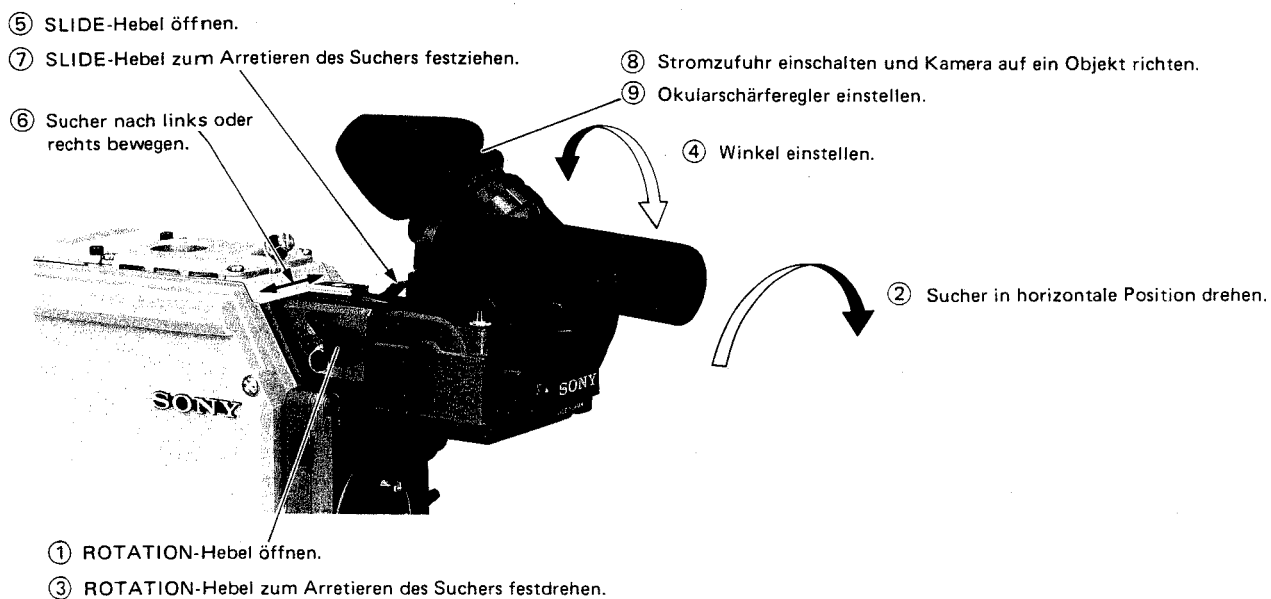
- der Gegenstand besitzt nicht genug Kanten und nicht genug Kontrast.
- die Blende ist falsch eingestellt.
- der Gegenstand ist nicht scharfgestellt.
- der Gegenstand hat sich während der Einstellung bewegt.
- der Zentrierungsbereich wurde überschritten.

Stellen Sie die Ursache fest, und nehmen Sie den Abgleich erneut vor.

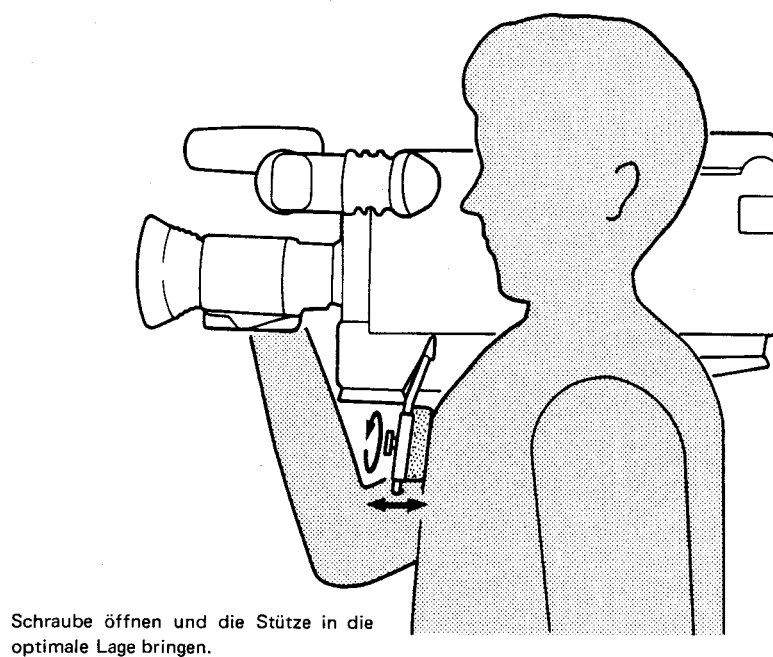
Abspeichern des Zentrierungswertes

Der eingestellte Zentrierungswert kann genau wie die Weiß- und Schwarzabgleichwerte gespeichert werden, wobei die Speicherung noch ca. eine Woche nach Abschalten der Stromzufuhr erhalten bleibt. Wenn dieser Zeitraum überschritten wird, erhält man im Memory den werkseitig voreingestellten Wert.

1-6-4. Suchereinstellungen

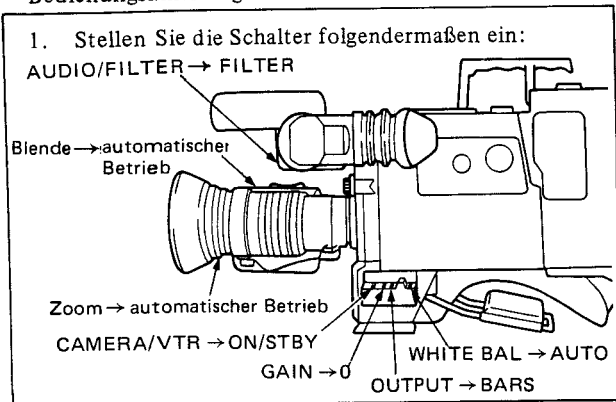


1-6-5. Ausrichten der Stütze



1-7. FUNKTIONSKONTROLLEN

- Im folgenden wird ein Bedienungsbeispiel gegeben. Genauere Informationen zur Bedienung des Objektivs finden Sie in der mit dem Objektiv mitgelieferten Bedienungsanleitung.



2. Stellen Sie den Sucher ein.
3. Vergewissern Sie sich, daß die Farbbalken auf dem Sucherschirm erscheinen.
4. Stellen Sie den BRIGHT- und CONTR-Regler so ein, daß die Farbbalken auf dem Sucherschirm klar abgebildet werden.
5. Wechseln Sie die FILTER-Wählereinstellung von 1 → 2 → 3 → 4, und überprüfen Sie, ob der richtige Wert im Sucher angezeigt wird.
6. Stellen Sie den OUTPUT-Wähler auf CAM.
7. Richten Sie die Kamera auf ein Motiv.
8. Stellen Sie das Motiv durch Drehen des Fokussierings scharf ein. Überprüfen Sie, ob das Bild auf dem Sucherschirm erscheint.
9. Überprüfen Sie das Motorzoom.

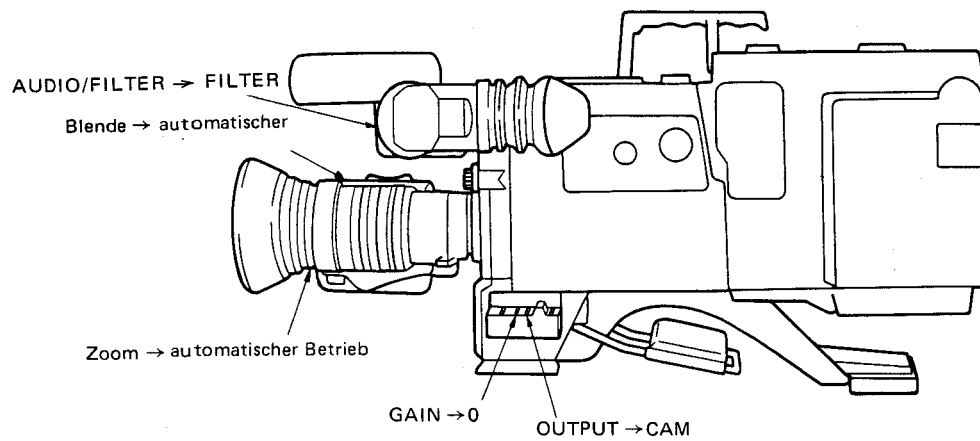
10. Stellen Sie das Zoom auf manuellen Betrieb.
11. Überprüfen Sie das manuelle Zoomen.
12. Stellen Sie das Zoom auf automatischen Betrieb.
13. Richten Sie die Kamera auf Motive unter verschiedenen Helligkeitsniveaus und überprüfen Sie, ob die automatische Blendeneinstellung funktioniert.*
14. Stellen Sie die Blende auf manuellen Betrieb.
15. Drehen Sie den Blendenring, um die manuelle Blendeneinstellung zu überprüfen.
16. Drücken Sie die Sofort-Auto-Taste und halten Sie sie in gedrückter Stellung, um kurz auf automatische Blendeneinstellung zu schalten. Richten Sie die Kamera auf Motive unter verschiedenen Helligkeitsniveaus, um die Einstellung zu überprüfen.
17. Stellen Sie die Blende auf automatischen Betrieb.
18. Stellen Sie den GAIN-Wähler auf 9, dann auf 18. Überprüfen Sie, ob sich die Blende jeweils um eine Stufe schließt und ob die GAIN UP-Anzeige leuchtet.
19. Stellen Sie den GAIN-Wähler auf 0.

* Bei Verwendung eines Objektivs mit 6-poligem Anschluß können Regelschwingungen auftreten. Stellen Sie in diesem Fall den AUTO IRIS GAIN-Regler am Objektiv ein. (Genauere Informationen finden Sie in der Bedienungsanleitung des Objektivs.)

1-8. BETRIEB

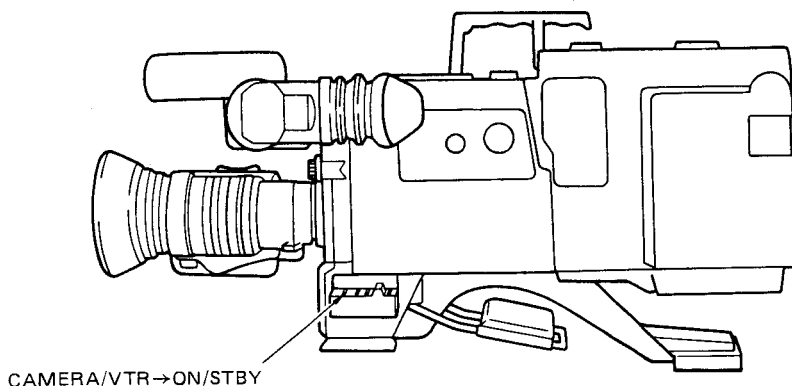
1-8-1. Vorbereitung

Stellen Sie die Schalter vor dem Betrieb folgendermaßen ein:



1-8-2. Kameraaufnahme

1. Schalten Sie die Kamera und die anderen Geräte



2. Setzen Sie eine Cassette ein.
3. Wählen Sie den entsprechenden Filter.
4. Stellen Sie den Weiß- und Schwarzabgleichwert ein.
Wenn der Weiß- und Schwarzabgleichwert gespeichert ist,
stellen Sie den WHITE BAL-Schalter auf AUTO.
Wenn der Weiß- und Schwarzabgleichwert nicht gespeichert ist, Sie jedoch schnell mit der Aufnahme beginnen wollen,
stellen Sie den WHITE BAL-Schalter auf PRESET und den AUTO W/B BAL-Schalter auf BLK. Man erhält dann einen Weiß- und Schwarzabgleich für 3200°K.

Durchführung des Weiß- und Schwarzabgleichs

- ① Stellen Sie den WHITE BAL-Schalter auf AUTO.
 - ② Richten Sie die Kamera auf einen weißen Gegenstand.
 - ③ Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Sobald die W/B CENT-Anzeige im Sucher aufleuchtet, ist der Schwarzabgleich durchgeführt.
 - ④ Stellen Sie den AUTO W/B BAL-Schalter auf WHT. Sobald die W/B CENT-Anzeige im Sucher aufleuchtet, ist der Weißabgleich durchgeführt.
 - Genauere Informationen finden Sie unter „1-6-1. Weiß- und Schwarzabgleich“.
5. Richten Sie die Kamera auf das Motiv und stellen Sie Schärfe und Zoom ein.
 6. Drücken Sie die VTR-Taste, um mit der Aufnahme zu beginnen. Die REC-Anzeige im Sucher leuchtet während der Aufnahme.
 7. Um die Aufnahme zu beenden, drücken Sie die VTR-Taste erneut.

Aufnahme bei schwacher Beleuchtung

Wenn die Beleuchtung so schwach ist, daß man bei normaler Einstellung kein klares Bild erhält, stellen Sie den GAIN-Schalter auf „9“ oder „18“. In der Position 9 des GAIN-Schalters wird der Videoausgangspegel um 9 dB und in der Position 18 um 18 dB erhöht.

- Normalerweise ist der Wähler auf „0“ zu stellen.

Überprüfung des Videopegels

Ein Streifenmuster erscheint an der Stelle des Sucherbildschirms, an der der Videopegel des Bildes 70% (IRE Einheit) beträgt. Dies stellt eine Hilfe bei der manuellen Blendeneinstellung dar.

Das Zebromuster kann am TALLY/ZEBRA ON/OFF-Schalter abgeschaltet werden. Dies ist jedoch nicht möglich, wenn ein spezieller Schalter an einer internen Leiterplatte auf OFF gestellt wird. Genauere Informationen dazu finden Sie im Teil 2.

1-9. VORSICHTSMASSNAHMEN

Die Kamera nie direkt gegen die Sonne halten.

Wenn man die Kamera direkt gegen die Sonne hält oder auf eine andere starke Lichtquelle richtet, kann die Aufnahme-
röhre beschädigt werden. Durch Daueraufnahmen von hell
beleuchteten Motiven kann die Aufnahmeröhre ebenfalls
Schaden nehmen. Falls Aufnahmen bei heller Beleuchtung
gemacht werden müssen, schließen Sie die Blende soweit
wie möglich.

Gehen Sie sorgsam mit der Kamera um und vermeiden Sie Erschütterungen.

Nach dem Gebrauch der Kamera

Den Strom des an die Kamera angeschlossenen Gerätes ab-
schalten.

Betriebsumgebung und Aufbewahrungsplatz

Betreiben Sie die Kamera nicht an den nachstehend aufge-
führten Plätzen, und bewahren Sie sie dort auch nicht auf:

Extrem heiße oder feuchte Plätze (die Betriebstemperatur
reicht von -20°C bis $+40^{\circ}\text{C}$)

Plätze, an denen die Kamera direkter Sonnenbestrahlung,
übermäßig viel Staub und Erschütterungen ausgesetzt ist.

Plätze, an denen die Kamera starken Magnetfeldern
ausgesetzt ist.

Bewahren Sie die Kamera waagrecht liegend auf und sorgen
Sie für ausreichende Luftzufuhr.

Reinigen Sie das Sucherobjektiv mit einer handelsüblichen Objektiv-Reinigungsflüssigkeit.

Verwenden Sie keine Lösemittel wie Alkohol, Benzin oder
Verdünner.

1-10. TECHNISCHE DATEN

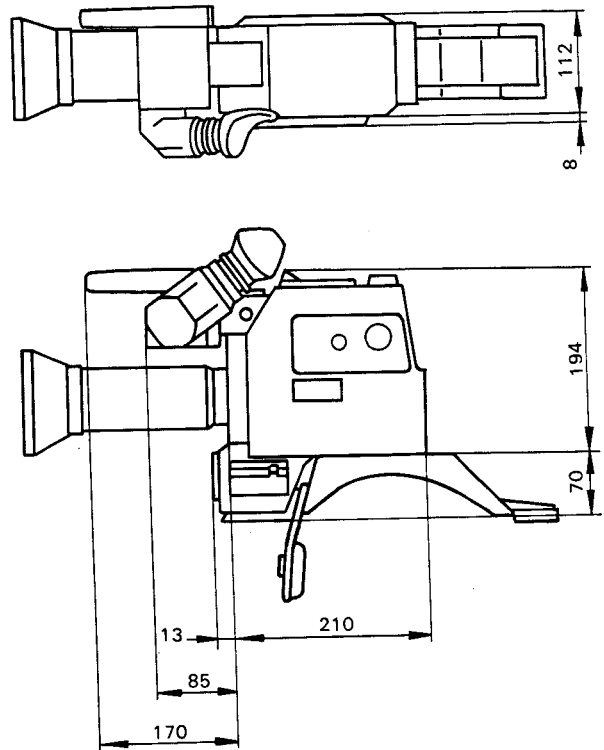
Kamera

| | |
|-----------------------------|--|
| Aufnahmeöhre | 2/3" Plumbicon (magnetische Fokussierung, statische Ablenkung) |
| System | 3-Röhren RGB-System (mit Quarzfilter) |
| Spektralsystem | f 1,4 Prismensystem |
| Eingebaute Filter | 1: 3200°K 2: 5600°K + 1/4ND 3: 5600°K 4: 5600°K + 1/16ND |
| Objektivbefestigung | Spezial-Bajonettverschluß |
| Videoausgang | PAL 1,0 Vss, 75 Ohm, unsymmetrisch, Video positiv, zwei Ausgänge (TEST OUT, VTR) |
| Anschlüsse | VTR: 50-pol (Videoausgang, Mikrofonausgang, Sync-Ausgang, Stromversorgungsseingang) TEST OUT: BNC-Buchse LENS: 6-pol, 12-pol REMOTE: 6-pol |
| Empfindlichkeit | 2000 Lux mit f4,5 (typisch), 89,9% Refl. |
| Minimaler Objektbeleuchtung | 25 Lux (f 1,4 + 18 dB Verstärkung) |
| Video Signal-Rauschabstand | 57 dB (typisch) |
| Horizontale Auflösung | 650 (Mitte) |
| Farbdeckung | 0,1% in Zone I (in einem Kreis, der einen Durchmesser von 80% der Bildhöhe besitzt) 0,15% in Zone II (in einem Kreis, dessen Durchmesser gleich der Bildhöhe ist) 0,3% in Zone III (sonstiger Bereich) |
| Geometrische Verzerrungen | Weniger als 1% |
| Stromversorgung | 12V Gleichspannung (10,5 bis 17V) |
| Leistungsaufnahme | 24W |
| Warmlaufzeit | ca. 3,5 Sekunden vom Vorheizbetrieb |
| Betriebstemperatur | -20°C bis +50°C |
| Aufbewahrungstemperatur | -20°C bis +60°C |
| Gewicht | 46 kg mit Sucher |

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

Abmessungen

Einheit: mm



Sucher

| | |
|-----------|--|
| Bildröhre | 1,5" -Monochrom Helligkeitsregler, Kontrastregler, Signallampen/Zebrawuster-Ein/Ausschalter, Konturanhebungsschalter, AUDIO/FILTER-Schalter, Aufnahmepegelregler für Tonkanal 1 |
| Auflösung | 500 Fernsehzeilen |
| Mikrofon | Starke Richtwirkung |

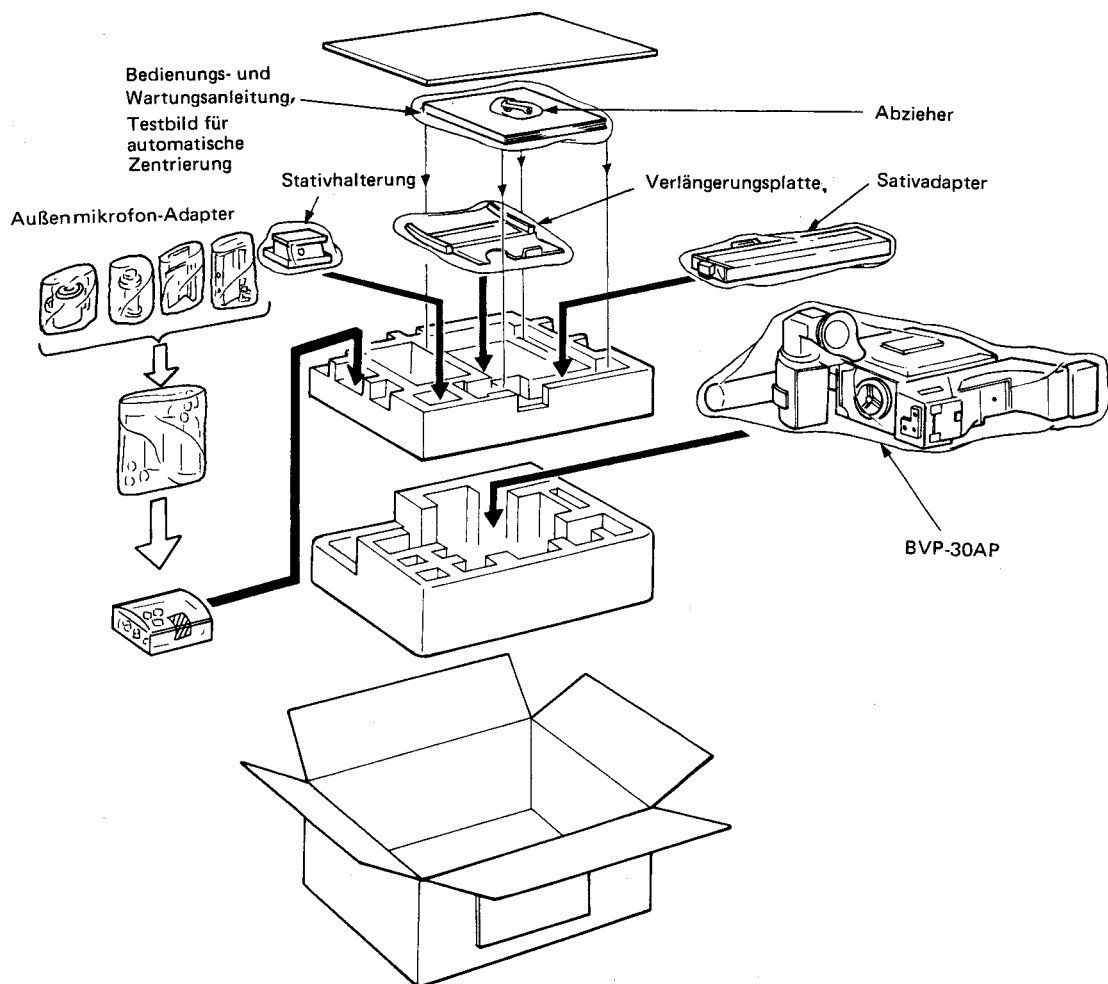
Mitgeliefertes Zubehör

| |
|--|
| Stativadapter x1 |
| Stativhalterung x1 |
| Verlängerungsplatte x1 |
| Abzieher x1 |
| Testbild für automatische Zentrierung x1 |
| Außenmikrofon-Adapter x1 |

Empfohlene Geräte

| |
|--|
| Portabler Videorecorder BVV-1PS/BVV-1APS |
| Kameraadapter CA-3, CA-30P |
| Netzadapter AC-500CE |
| Fernbedieneinheit RM-P3 |
| Videomonitor BVF-50 |

1-11. VERPACKEN DER BVP-30AP



1-12. BEDIENUNG DES BETACAM-SYSTEMS BVW-30AP

1-12-1. Merkmale

Kompakt und leicht

Kamera BVP-30AP, Videorecorder BVV-1PS/BVV-1APS, Batterie und Cassette wiegen zusammen nur etwa 10 kg.

Kabelloses System

Kamera, Videorecorder, Sucher, Batterie, Mikrofon usw. werden ohne irgendwelche Kabel miteinander verbunden.

Geringe Leistungsaufnahme

Die Leistungsaufnahme ist so gering, daß eine einzige Akkubatterie NP-1 bei einem Zusammenschluß mit dem BVV-1PS/BVV-1APS einen Betrieb von ca. 30 Minuten ermöglicht.

Video- und Audio-Hinterbandkontrolle

Das Video- und Audio-Hinterbandkontrollsystem ermöglicht das Überprüfen des Aufnahmebildes und -tons.

Qualitativ hochwertiges Bild

Das neu entwickelte Aufnahmesystem mit einer 1/2-Zoll-Cassette hat die Bildqualität wesentlich verbessert und kommt nun an die des 1-Zoll-Video-recorderbildes heran. Die drei Plumbicon-Aufnahmeröhren mit der magnetischen Fokussierung und statischen Ablenkung gewährleisten eine hochwertige Bildqualität.

Eingebauter Zeitcodegenerator

Ein eingebauter Zeitcodegenerator gestattet die gleichzeitige Aufnahme des Zeitcodes während des Betriebs. Das Benutzer-Bit kann ebenfalls aufgezeichnet werden.

Unabhängige Zeitcode-Spur

Die Zeitcode-Spur ist von der Video-Spur getrennt, so daß Zeitcodeaufnahme und Löschen mit einem Schnitt-Steuergerät möglich sind.

Zwei Tonkanäle

Der Ton vom eingebauten Mikrofon oder von Außenmikrofonen bzw. von anderen Tonquellen kann auf zwei Tonkanäle getrennt aufgenommen werden.

Zusammenfügen von Einzelszenen

Dank einer speziellen Vertikalintervall-Timing-Einrichtung können einzelne Aufnahmeszenen mit störungsfreien Schnittstellen aneinandergefügt werden.

Warnsystem

Bei Betriebsstörungen leuchten Warnanzeigen auf, und ein Warnton ist sowohl über den Lautsprecher als auch über den Ohrhörer zu hören.

Anzeige für verbleibende Aufnahmezeit

Die noch verbleibende Aufnahmezeit wird im Sucher angezeigt.

Verwendung des Drahtlos-Mikrofonsystems

Ein Empfänger aus dem Sony Drahtlos-Mikrofonsystem kann angebracht werden.

Zusätzliche Akkubatterie

Zusammen mit der im Batteriefach der BVV-1PS/BVV-1APS eingesetzten Akkubatterie kann eine weitere Akkubatterie verwendet werden.

Dolby*-C Rauschverminderungssystem für bessere Tonqualität

Das in diesem Gerät verwendete neuentwickelte Dolby-C Rauschverminderungssystem liefert einen besseren Signal-Rauschabstand und einen größeren Dynamikbereich. Zum Einschalten des Dolby-Schaltkreises siehe Abschnitt 2 der BVV-1PS/BVV-1APS Bedienungsanleitung.

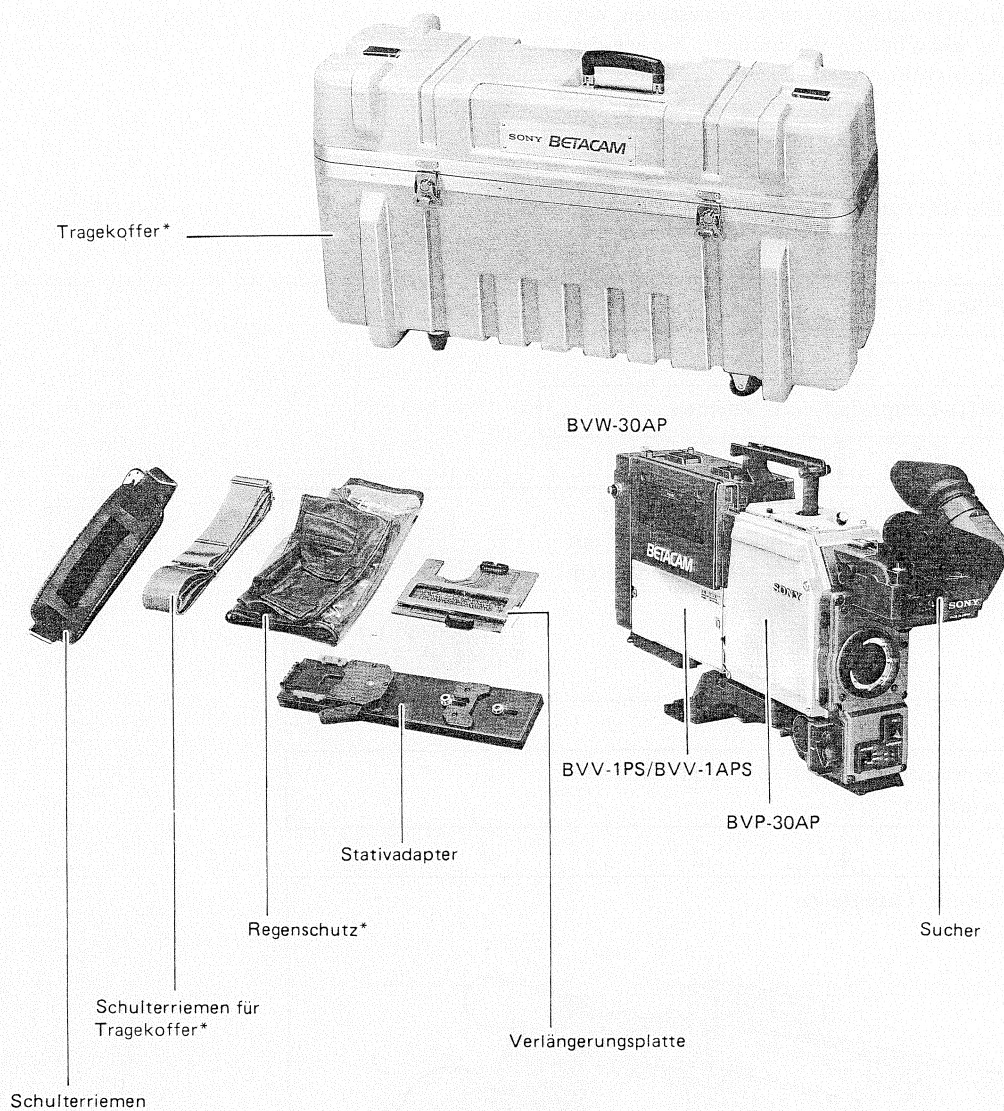
- * „Dolby“ und das Doppel-D-Symbol sind Warenzeichen der Dolby Laboratories Licensing Corporation. Das Dolby-Rauschverminderungssystem wird unter Lizenz der Dolby Licensing Corporation hergestellt.

Hinweis

Mit einem BVV-1PS der Serien-Nr. 49999 oder niedriger arbeiten die folgenden Funktionen der BVW-30AP nicht.

- Tonpegelanzeige im Sucher.
- AufnahmepegelEinstellung von Tonkanal 1.

1-12-2. Bestandteile des BVW-30AP



Batteriefachdeckelschnur
 Testbild für automatische Zentrierungseinstellung
 Außenmikrofon-Adapter
 Abzieher
 50-Pol Kappen
 Zeitcodekabel
 6-Pol-Anschluß

* Tragekoffer, Schulterriemen für Tragekoffer und Regenschutz werden mit dem Betacam-System BVW-30AP mitgeliefert. Bei getrenntem Kauf des Video-recorders BVV-1PS/BVV-1APS und der Kamera BVP-30AP werden diese Teile nicht mitgeliefert. Ihr Sony Händler gibt Ihnen gerne genauere Auskünfte bezüglich dieser Teile.

1-12-3. Kontrollroutinen

Vor der Aufnahme empfehlen wir Ihnen, die folgenden Prüfungspunkte durchzugehen, um sicherzustellen, daß das Betacam-System einwandfrei funktioniert. Verwenden Sie hierbei zur Bildkontrolle einen Farbmonitor.

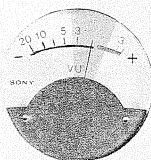
1. Vorbereitung

1. Setzen Sie eine voll aufgeladene Akkubatterie ein.

2. POWER-Schalter → ON

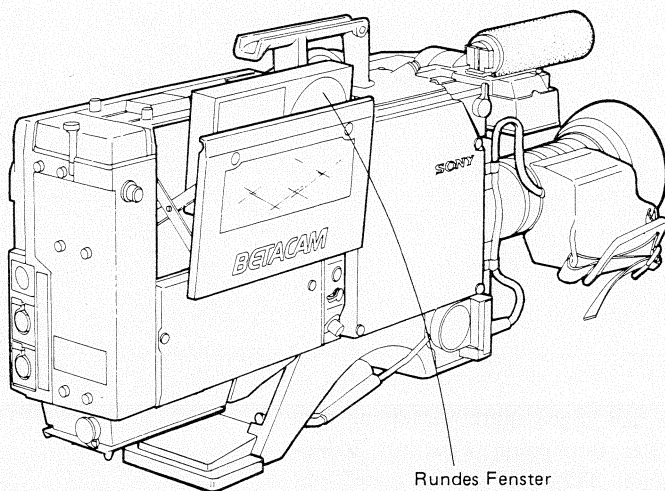
3. Die HUMID-Lampe darf nicht leuchten.

4. Überprüfen Sie die Batterie.
Stellen Sie den METER SELECT-Schalter auf BATT und überprüfen Sie, ob der Instrumenten-
zeiger in die grüne Zone ausschlägt.



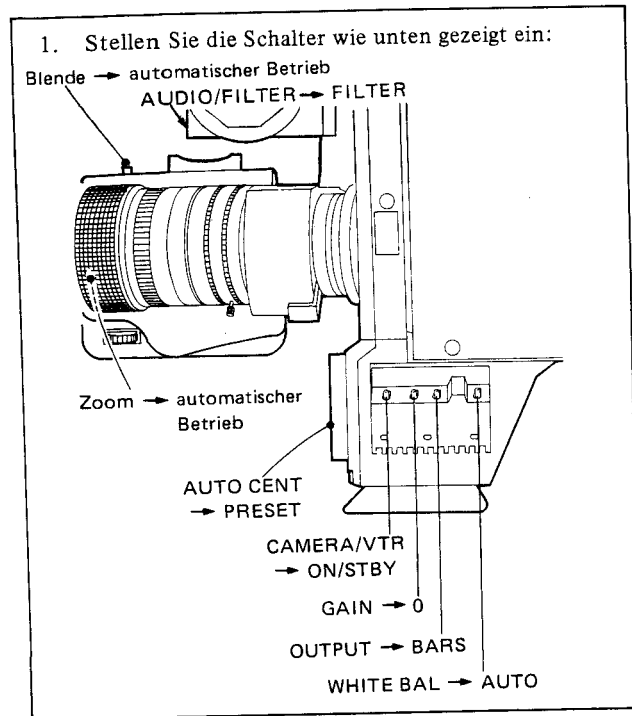
5. Falls erforderlich stellen Sie Zeitcode oder
Benutzer-Bit ein.

6. Setzen Sie eine Cassette ein.



- Stellen Sie sicher, daß die Löchsperre unten an der Cassette vorhanden ist.

2. Überprüfen der Kamera



2. Richten Sie den Sucher aus.

3. Überprüfen Sie, ob die Farbbalken im Sucher erscheinen.

4. Stellen Sie den BRIGHT- und den CONTR-Regler am Sucher so ein, daß die Farbbalken auf dem Sucherschirm klar zu sehen sind.

5. Stellen Sie den FILTER-Wähler nacheinander auf 1 → 2 → 3 → 4, und überprüfen Sie, ob der richtige Wert im Sucher angezeigt wird.

6. Stellen Sie den OUTPUT-Wähler auf CAM.

7. Richten Sie die Kamera auf ein geeignetes Motiv.

8. Drehen Sie den Fokusserring so, daß das Motiv scharf ist. Überprüfen Sie, ob das Motiv auf dem Sucherschirm erscheint.

9. Überprüfen Sie den Motorzoombetrieb. Durch Drücken der Motorzoom-Taste kann vom Weitwinkel- in den Telebereich gefahren werden und umgekehrt.

10. Stellen Sie das Zoom auf manuellen Betrieb.

11. Überprüfen Sie den manuellen Zoombetrieb. Durch Drehen des Zoomhebels kann vom Weitwinkel- in den Telebereich gefahren werden und umgekehrt.

12. Stellen Sie das Zoom auf automatischen Betrieb.

13. Richten Sie die Kamera auf Motive mit unterschiedlichen Helligkeitsniveaus und überprüfen Sie, ob die Blendensystem funktioniert.*

14. Stellen Sie die Blende auf manuellen Betrieb.

15. Drehen Sie den Blendenring und überprüfen Sie, ob sich die Blende ändert.

16. Drücken Sie die Sofort-Auto-Taste und halten Sie sie gedrückt, um kurz auf automatische Blendeneinstellung zu schalten. Richten Sie die Kamera auf Motive mit verschiedenen Helligkeitsniveaus, um die Einstellung zu überprüfen.

17. Stellen Sie die Blende auf automatischen Betrieb.

18. Stellen Sie den GAIN-Schalter auf 6, dann auf 12. Überprüfen Sie, ob die Blende jeweils um eine Stufe schließt und die GAIN UP-Anzeige im Sucher leuchtet.

19. Stellen Sie den GAIN-Wähler auf 0.

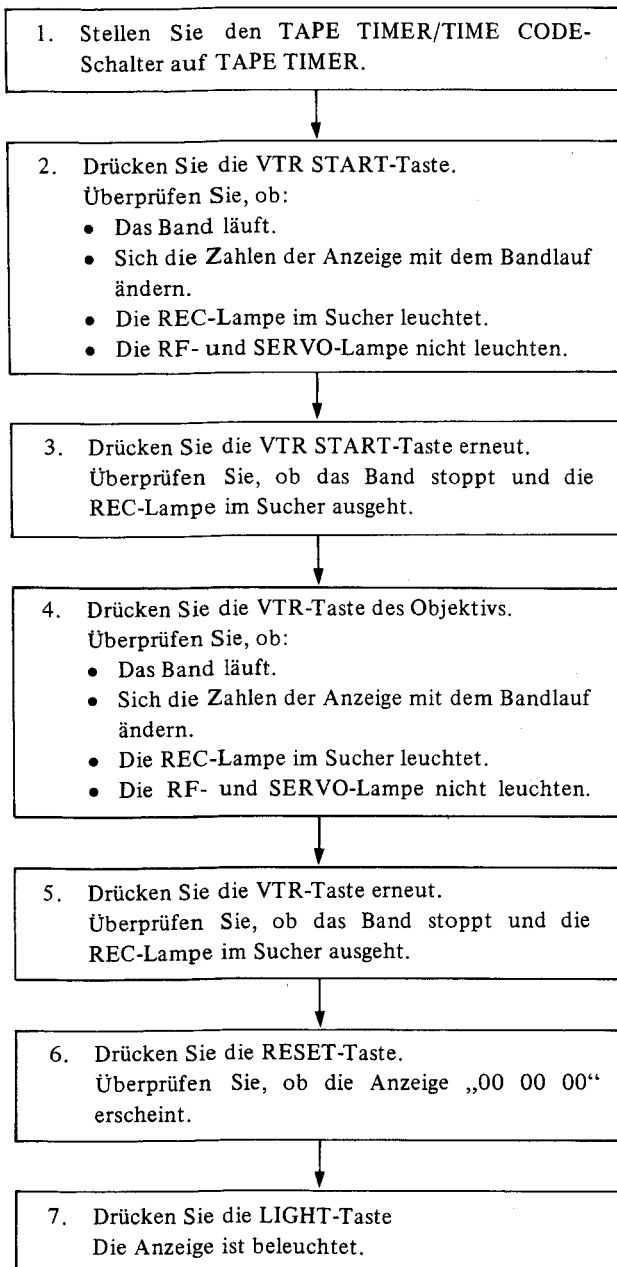
20. Stellen Sie den AUDIO/FILTER-Schalter auf AUDIO. Überprüfen Sie, daß die FILTER/AUDIO-Anzeige den Tonpegel anzeigt.

* Bei Verwendung eines Objektivs mit 6-poligem Anschluß können Regelschwingungen auftreten. Stellen Sie in diesem Fall den AUTO IRIS GAIN-Regler am Objektiv ein. (Genauere Informationen finden Sie in der Bedienungsanleitung des Objektivs.)

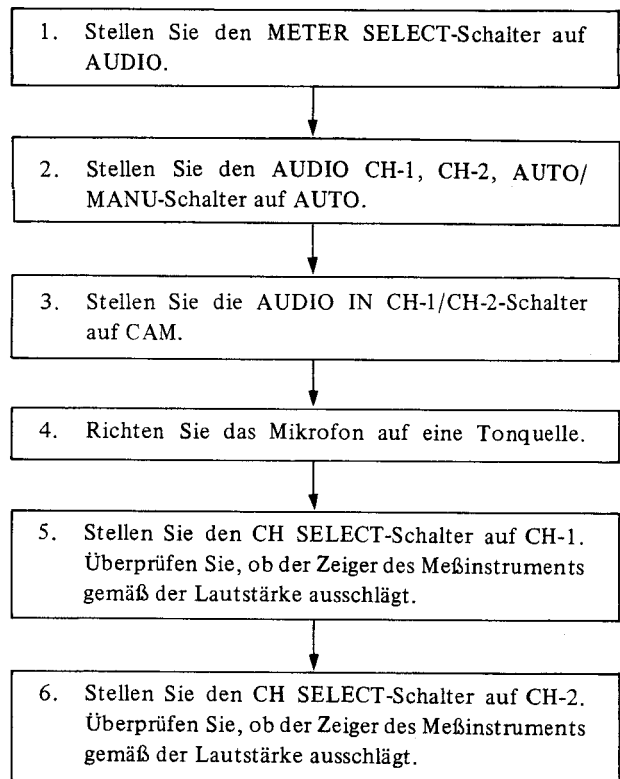
3. Überprüfen des Videorecorders

Führen Sie die Schritte 3-1. bis 3-5. der Reihe nach durch.

3-1. Überprüfen des Bandtransports



3-2. Überprüfen der automatischen Einstellung des Aufnahmepegels



3-3. Überprüfen der manuellen Einstellung des Aufnahmepegels

1. Stellen Sie den AUDIO CH-1, CH-2, AUTO/MANU-Schalter auf MANU.
2. Drehen Sie den AUDIO LEVEL CH-2-Regler im Uhrzeigersinn.
Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.
3. Stellen Sie den CH SELECT-Schalter auf CH-1.
4. Drehen Sie den AUDIO LEVEL CH-1-Regler im Uhrzeigersinn.
Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.
5. Drehen Sie den AUDIO CH-1-Regler der Kamera.
Überprüfen Sie, daß die Pegelmeter ausschlagen.
6. Stellen Sie den AUDIO-Schalter auf AUTO.

3-4. Überprüfen von Ohrhörer und Lautsprecher

1. Drehen Sie die VOLUME-Regler des Video-recorders und der Kamera nach rechts.
Überprüfen Sie, ob sich die entsprechende Lautsprecher-Lautstärke ändert.
2. Schließen Sie einen Ohrhörer an die EARPHONE-Buchse an.
Überprüfen Sie, ob der Lautsprecher abgeschaltet wird, und die Wiedergabe über Ohrhörer erfolgt.
3. Drehen Sie am VOLUME-Regler.
Überprüfen Sie, ob sich die Ohrhörer-Lautstärke ändert.

3-5. Überprüfen der Ton-Hinterbandkontroll-Funktion

1. Stellen Sie den AUDIO IN CH-1-Schalter auf CAM und den AUDIO IN CH-2-Schalter auf LINE.
2. Drücken Sie die VTR-Taste.
3. Überprüfen Sie, ob der Ton vom Mikrofon zu hören ist.
4. Stellen Sie den AUDIO IN CH-1-Schalter auf LINE und den AUDIO IN CH-2-Schalter auf CAM.
5. Überprüfen Sie, ob der Ton vom Mikrofon zu hören ist.

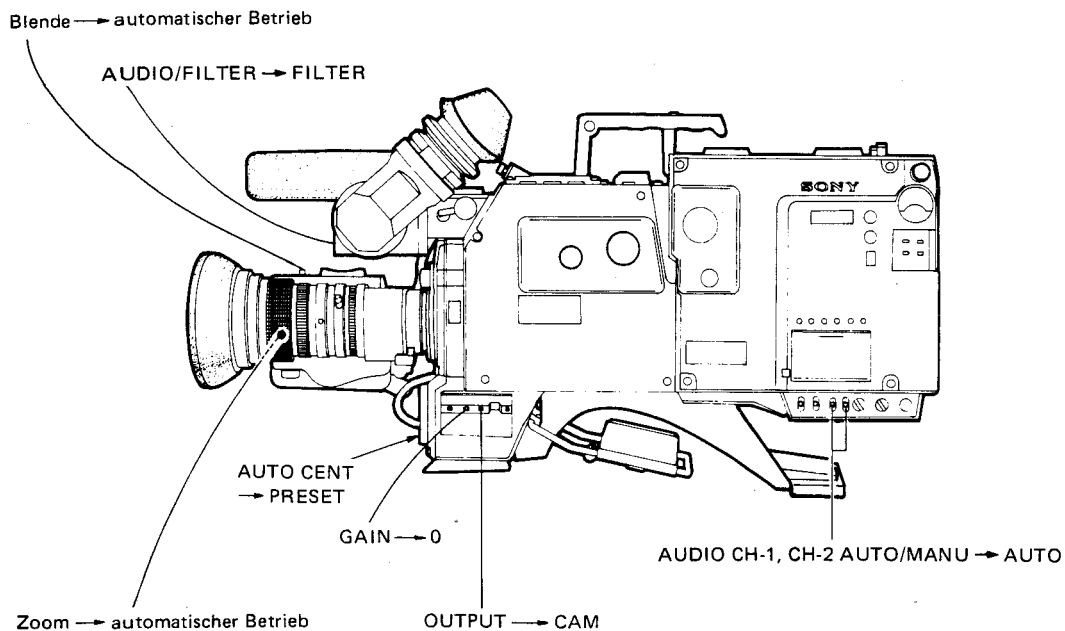
3-6. Überprüfen der Außenmikrofone

1. Schließen Sie die Mikrofone an die AUDIO IN CH-1/CH-2-Anschlüsse an.
2. Stellen Sie die AUDIO IN CH-1/CH-2-Schalter auf MIC.
3. Stellen Sie den AUDIO-Schalter auf AUTO.
4. Richten Sie die Außenmikrofone auf eine Tonquelle.
5. Stellen Sie den CH SELECT-Schalter auf CH-1.
Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.
6. Stellen Sie den CH SELECT-Schalter auf CH-2.
Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.

1-12.4. Bedienung

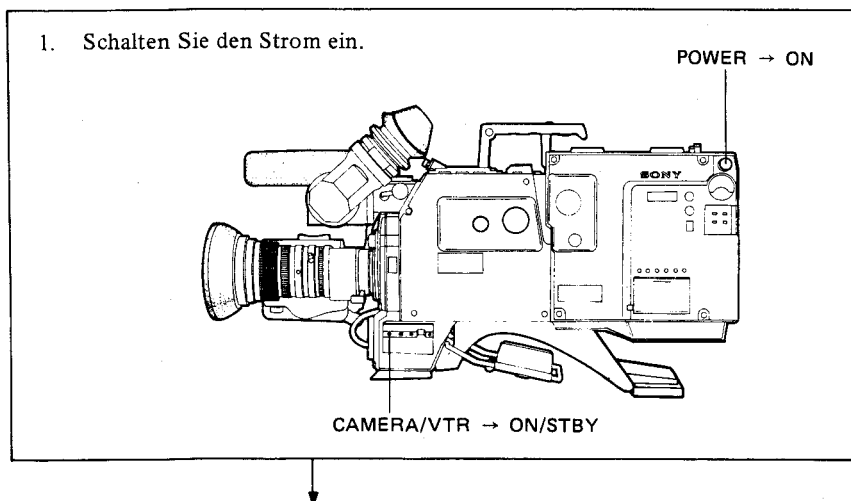
1. Vorbereitung

Überprüfen Sie vor Inbetriebnahme, daß die Schalter wie unten gezeigt richtig eingestellt sind.



2. Aufnahme

1. Schalten Sie den Strom ein.



2. Setzen Sie eine Cassette ein.

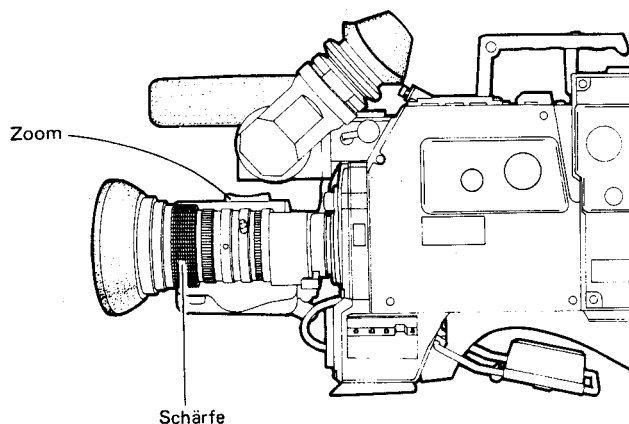
3. Wählen Sie einen den Lichtverhältnissen entsprechenden Filter.

4. Stellen Sie den Weiß- und Schwarzabgleichwert ein.
Wenn der Weiß- und Schwarzabgleichwert gespeichert ist,
 stellen Sie den WHITE BAL-Schalter auf AUTO.
Wenn der Weiß- und Schwarzabgleichwert nicht gespeichert ist, Sie jedoch schnell mit der Aufnahme beginnen wollen,
 stellen Sie den WHITE BAL-Schalter auf PRESET und den AUTO W/B BAL-Schalter auf BLK. Sie erhalten dann einen Weiß- und Schwarzabgleich für 3200°K.

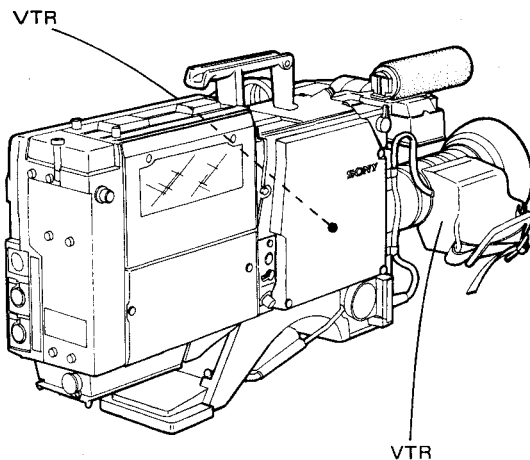
Durchführung des Weiß- und Schwarzabgleichs

1. Stellen Sie den WHITE BAL-Schalter auf AUTO.
 2. Zoomen Sie auf den weißen Gegenstand.
 3. Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Sobald die W/B CENT-Anzeige aufleuchtet, ist der Schwarzabgleich durchgeführt.
 4. Stellen Sie den AUTO W/B BAL-Schalter auf WHT, und prüfen Sie, ob die W/B CENT-Anzeige aufleuchtet.
- Genauere Angaben zum Weiß- und Schwarzabgleich finden Sie im Abschnitt „1-6. Einstellungen“.

5. Richten Sie die Kamera auf das Motiv und stellen Sie Schärfe und Zoom ein.



6. Drücken Sie die VTR-Taste am Objektiv oder an der Kamera. Die Aufnahme beginnt.



Die REC-Lampe im Sucher leuchtet während der Aufnahme.

7. Um die Aufnahme zu beenden, drücken Sie die VTR-Taste erneut. Der Videorecorder schaltet dann in Bereitschaftsbetrieb, und die REC-Lampe geht aus.

Manuelle AufnahmepegelEinstellung

Der Tonaufnahmepegel kann wie im folgenden beschrieben manuell eingestellt werden. Bei Verwendung eines BVV-1PS der Serien-Nr. 50000 und höher oder des BVV-1APS kann der Aufnahmepegel von Kanal 1 sowohl am Videorecorder als auch an der Kamera eingestellt werden.

1. Stellen Sie die AUDIO IN-Schalter für beide Tonkanäle wie folgt ein:
 Bei Verwendung des eingebauten Mikrofons → CAM
 Bei Verwendung eines Außenmikrofons → MIC
 Bei Aufnahmen eines LINE-Eingangssignals → LINE
 2. Stellen Sie die AUDIO CH-1, CH-2 AUTO/MANU-Schalter auf MANU.
 3. Stellen Sie den Pegel von Kanal 1 wie folgt ein.
 - 1) Drehen Sie den AUDIO LEVEL CH-1-Regler des Videorecorders ganz nach rechts.
 - 2) Stellen Sie den AUDIO/FILTER-Schalter der Kamera auf AUDIO.
 - 3) Stellen Sie den AUDIO CH-1-Regler der Kamera so ein, daß die Lampen 1 bis 4 der FILTER/AUDIO-Anzeige normalerweise leuchten und die rote Anzeige nur ganz kurzzeitig in den Spitzen aufleuchtet.
 - Die Maximaldämpfung mit dem AUDIO CH-1-Regler der Kamera beträgt ca. 20 dB. Ist innerhalb dieses Bereichs keine geeignete PegelEinstellung möglich, so stellen Sie den Pegel am AUDIO LEVEL CH-1-Regler des Videorecorders ein.
 - Die FILTER/AUDIO-Anzeige im Sucher zeigt je nach Spitzenpegel die folgenden Pegel an.
- FILTER/AUDIO-Anzeige

| | | | | |
|----|----|---|----|----|
| 1 | 2 | 3 | 4 | |
| -6 | -4 | 0 | +3 | +6 |
- Regelmeteranzeige (VU)
4. Der Pegel von Kanal 2 wird am AUDIO LEVEL CH-2-Regler des Videorecorders so eingestellt, daß der Zeiger der Pegelanzeige maximal bis 0 VU ausschlägt.

1-12-5. Warnsystem

Die Anzeigen im Sucher, die Warnlampen am Videorecorder und der Lautsprecher- bzw. Ohrhörer-Warnton machen die Bedienungsperson auf die folgenden Betriebszustände aufmerksam.

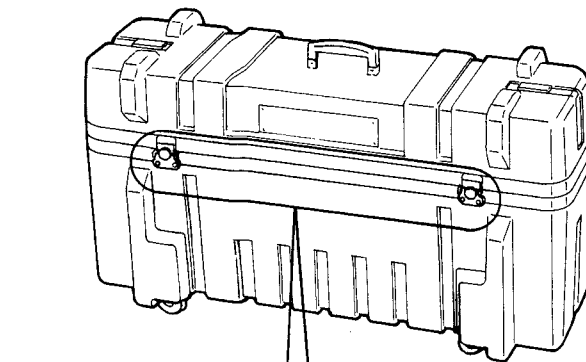
| Ursache | Anzeigen im Sucher | | | Warnlampen am Videorecorder | | | | | | Warnton | Videorecorder-Betrieb und Korrektur |
|--------------------------|--------------------|---------|------|-----------------------------|-------|-------|-------|----------|---------|---------|--|
| | REC | TAPE 5M | BATT | RF | SERVO | HUMID | SLACK | TAPE END | BATTERY | | |
| Bandende nahezu erreicht | | | | | | | | | | W W | Aufnahme geht weiter. |
| Bandende | | | | | | | | | | ~~~~~ | Aufnahme stoppt. Cassette wechseln. |
| Batterie fast leer | | | | | | | | | | W W | Aufnahme geht weiter. |
| Batterie leer | | | | | | | | | | ~~~~~ | Aufnahme stoppt. Batterie wechseln. |
| Fehler im Aufnahmesystem | | | | | | | | | | W W W | Aufnahme geht weiter, kann jedoch nicht richtig durchgeführt werden. Kopfreinigung ist erforderlich. (Für Einzelheiten siehe die Anleitung des BVV-1PS/BVV-1APS.) |
| Abnormalität im Servo | | | | | | | | | | W W W | Aufnahme geht weiter, kann jedoch nicht richtig durchgeführt werden. Schalten Sie den Strom aus und wenden Sie sich an Ihren Sony-Händler. Ein kurzes Aufleuchten der Anzeige beim Anlaufen des Bandes ist normal und stellt kein Problem dar. |
| Kondensation | | | | | | | | | | W W W | Aufnahme geht weiter, solange das Band nicht an der Kopftrommel haftet. Wenn dieser Fall eintritt, stoppt die Aufnahme, und das Band wird entladen. |
| Zu geringer Bandzug | | | | | | | | | | ~~~~~ | Die Aufnahme stoppt. Der POWER-Schalter und die EJECT-Taste funktionieren nicht. Nehmen Sie die Cassette manuell unter Bezugnahme auf den Abschnitt 2 der Anleitung des BVV-1PS/BVV-1APS heraus. |

Bedeutung der Symbole

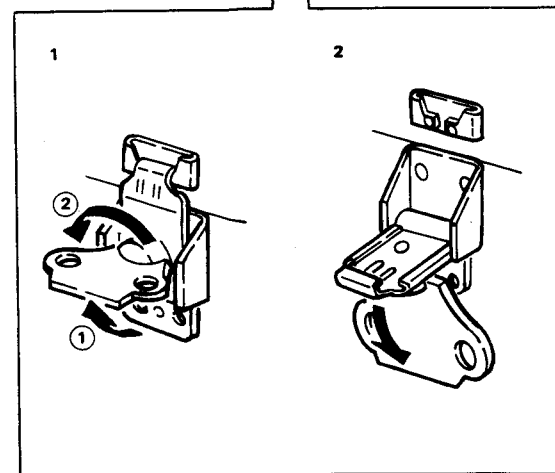
| Anzeigen | | Warnton | |
|----------|-----------------|---------|-----------------------------------|
| | Blinkt mit 1 Hz | W W | 1-kHz-Ton, 1-Sekunden-Intervall |
| | Blinkt mit 4 Hz | W W W | 1-kHz-Ton, 1/4-Sekunden-Intervall |
| | Leuchtet auf | ~~~~~ | Dauerton |

1-12-6. Verwendung' des Tragekoffers

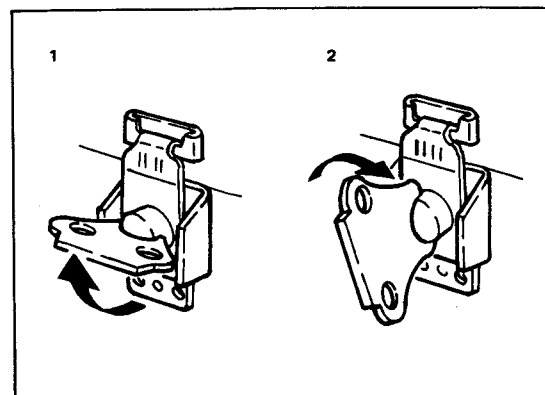
Zur Verpackung siehe unter „1-12-8. Verpacken des BVW-30AP“.



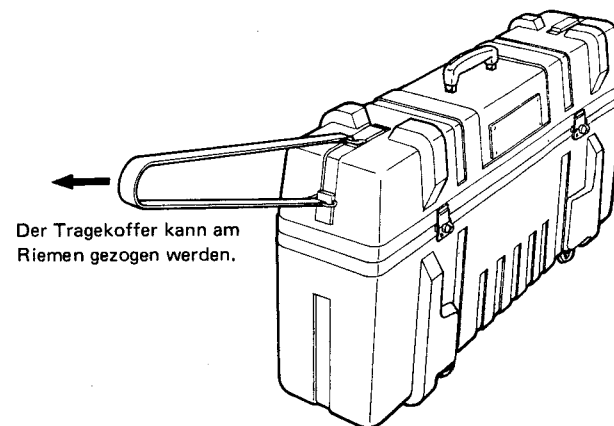
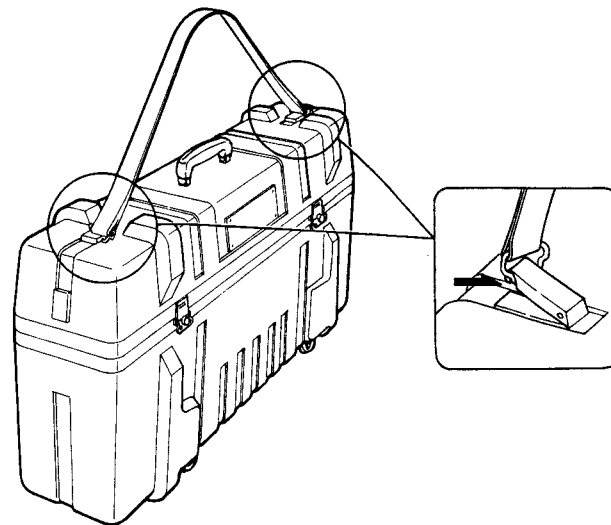
Öffnen des Koffers



Schließen des Koffers



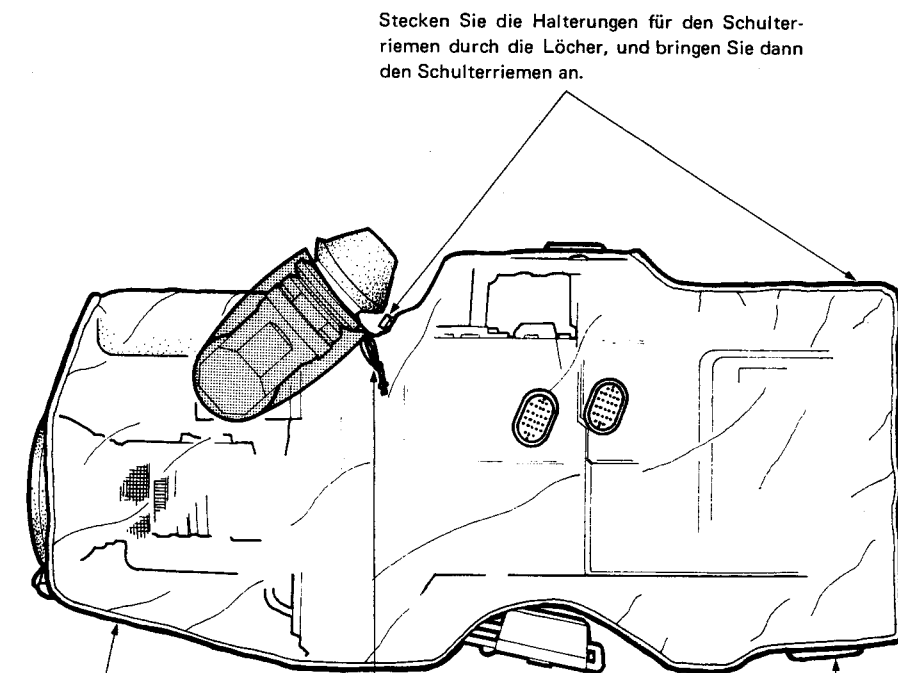
Anbringen des Schulterriemens am Tragekoffer



Hinweise

- Schützen Sie die Einheit vor Vibrationen und Stößen.
- Stellen Sie sich nichts auf den Tragekoffer.

1-12-7. Anbringung des Regenschutzes



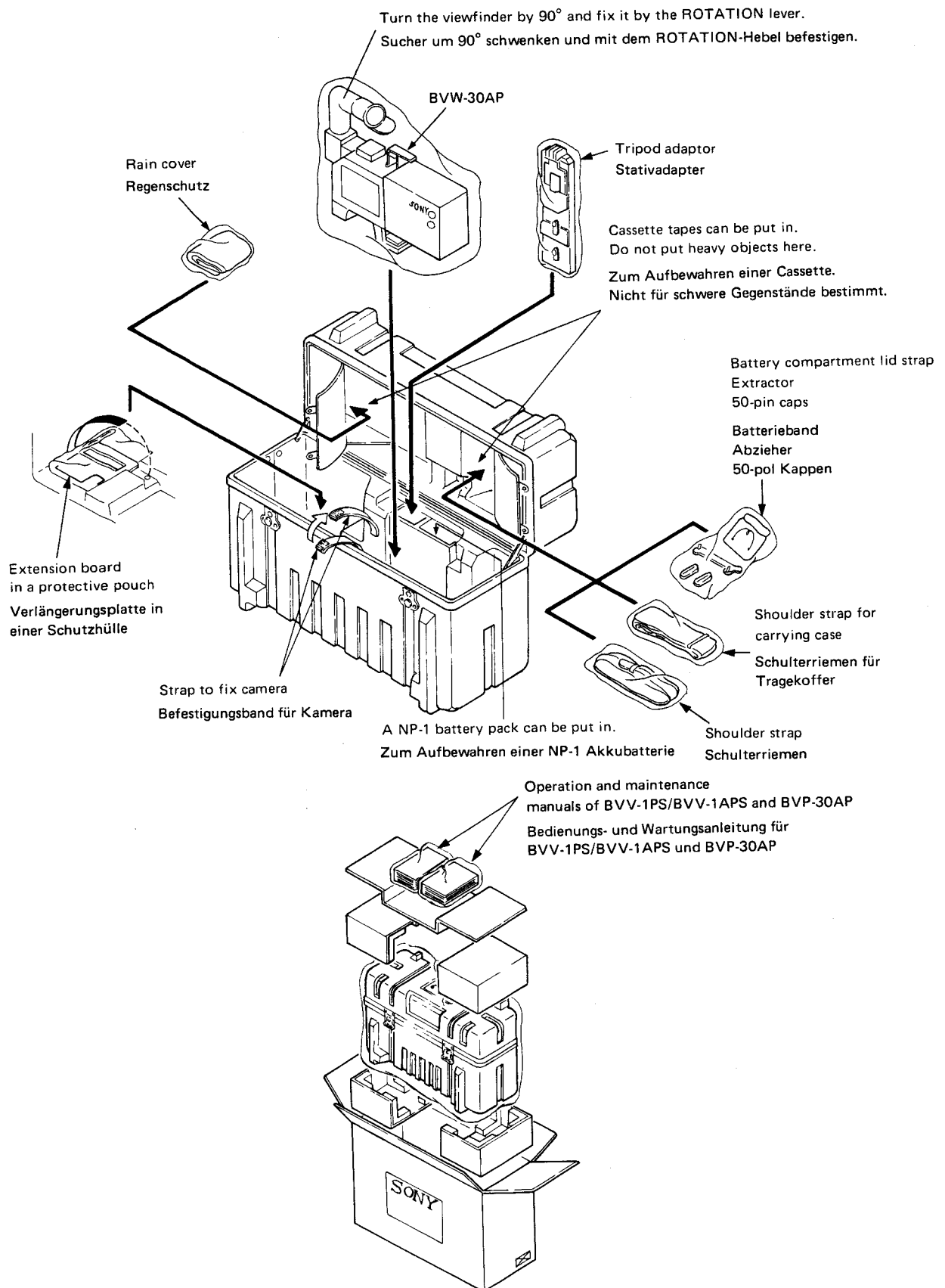
Stecken Sie die Halterungen für den Schulterriemen durch die Löcher, und bringen Sie dann den Schulterriemen an.

Die Schnur festziehen, damit der Regenschutz am Okular dicht ist.

Schließen Sie das Haftband unter dem Objektiv.

Schließen Sie das Haftband unter dem Videorecorder.

1-12-8. Packing of the BVW-30AP/Verpacken des BVW-30AP



SECTION 2

TECHNICAL INFORMATION

2-1. CIRCUIT DESCRIPTION

PA-37 board

It contains a set of preamplifiers which amplify the small signals from a set of imaging tubes so as to process them in the succeeding stages. The front end of each preamplifier is located around the target of the respective imaging tube so as to minimize degradation of performance due to stray capacitances.

It is also used to add the TEST SAW signal to the main channel signal.

VA-23 board

It receives the signals from the PA-37 board. Black-shading correction, amplification of 0 dB, 9 dB, or 18 dB, white-shading correction, and white balancing are performed on the VA-23 board.

It also contains the ABO circuit to optimize the beam of each imaging tube in terms of incident light.

The G-channel signal, among the B-, G-, and R-channel signals from the VA-23 board, is applied to the IE-6 board, and the remaining B- and R-channel signals to the PR-75 board. It also contains the control to widen the dynamic range for AUTO KNEE (D.C.C.) correction.

IE-6P board

It generates the horizontal and vertical detail-signals out of the G-channel signal. The respective detail signal enhances the contour of an image and apparently improves resolution.

It also contains the horizontal and vertical GATE-PULSE generator for use in automatic centering, and the VF video output circuit.

PR-75 board

It contains video signal processing circuits. The signal processing circuit mixes with the B-, G-, and R-channel signals the detail-signal and masking signal. It then performs flare correction to compensate for floating of the black level due to differences in the characteristics of the respective imaging tubes, white clipping so as to clip the signals of greater than the threshold level in order to prevent the VTR against overmodulation, knee-point setting accomplished to apparently assure a dynamic range to some extent in white levels, and gamma-correction to compensate for the γ -characteristics of the CRT.

The knee point has two functions both the manual knee point (as ever usual) and auto knee point (new system). They are selected by switch in the PR-75 board. The auto knee point is called by D.C.C. (=Dynamic Contrast Control).

In addition, it also contains the NAM-Y signal output circuit for driving the automatic iris control, ABL signal generator for use in automatic black level adjustment, and B-, G-, and R-channel output circuits used for adjusting the camera.

EN-33A board

It contains the Y-signal, composite video signal, R-Y signal, and B-Y signal generators which can be operated by the B-, G-, and R-channel signals from the PR-75 board.

It also contains the color-bar signal generator.

One can select either the camera signal or the color-bar signal in accordance with the selector position.

DF-23 board

It contains a pair of deflection circuits for the respective imaging tubes, where sawtooth wave signals necessary for beam deflection can be generated. The sawtooth wave signals are applied to the deflection electrodes of the respective imaging tubes.

For use with the 3-tube camera, it contains the registration setting waveform generator for use in registration adjustment.

SH-8A board

It generates the shading correction signals when the sawtooth wave signals are fed from the DF-23 board. These correction signals are used to compensate for shading occurring in the lens system and imaging tubes.

AT-16 board

It automatically accomplishes centering, white balancing, and black balancing for the camera, using a microcomputer. When the CCU is connected to the camera, it performs interfacing with the CCU so as to send the control signals from the CCU to the related circuit within the camera.

It also contains the driver for automatic iris control.

SG-63A board

It contains the synchronizing signal generator and generator locking circuit for synchronizing with the external sync.

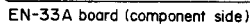
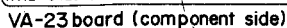
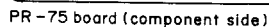
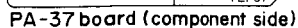
PS-41 board

It contains the switching voltage regulator, series voltage regulator, and DC-DC voltage converter.

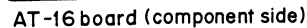
DC voltages are generated when a voltage of 12 volts DC is applied to the camera as power.

It also contains the electro-magnetic focusing current regulator for each imaging tube.

2-2. FUNCTION OF CONTROLS



OVERALL BLOCK DIAGRAM



VA-23

GAIN (R, G, B)

Adjusts so that R, G and B signals are equalized in level.

BEAM (R, G, B)

Adjusts the beam amount.

SH-8A

TEST

Turns on or off the test signal.

TEST WIDTH

Adjusts the pulsewidth of the test signal.

BIAS LIGHT

Turns on or off the bias light signal. When turned on, the brightness of the bias light can be changed using VR. When the iris is set at CLOSE, adjusts so that the output level of a pre-amplifier is 10 mV.

EXTENDER (R, G, B)

Adjusts using a lens with extender so that the color shading is minimized when an extender is used.

BLK BAL (R, G, B)

Adjusts so that no pedestal level changes when the gain switch is set at +9 dB or +18 dB.

H.PARA, H.SAW

V.PARA, V.SAW

Compensates the black level shading when the iris is set at CLOSE.

MOD H.SAW, MOD V.SAW

MOD V.PARA

Compensates the white level shading on the entire white pattern.

MOD V.FRAME (LEVEL, CLIP)

Reduces the vertical framing on the entire white pattern.

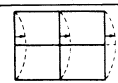
V.FRAME (BAL, R, G, B, CLIP)

Reduces the vertical framing when the iris is set at CLOSE.

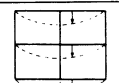
DF-23

Registration adjustment

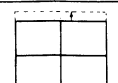
H.BOW (R, B)



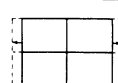
V.BOW (R, B)



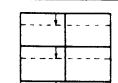
V.SIZE (R, B)



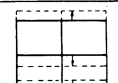
H.SIZE (R, B)



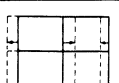
V.CENT (R, B)



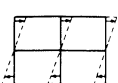
V.LIN (R, B)



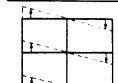
H.LIN (R, B)



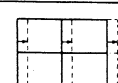
SKEW (R, B)



ROT (R, B)



H.CENT (R, B)



IE-6P

ZEBRA (ON/OFF)

Changes over the zebra signal to ON or OFF. If the ZEBRA (ON/OFF) switch is being set to OFF, it inhibits switch ON or OFF from the viewfinder.

DTL (ON/OFF)

Changes over the detail signal to ON or OFF.

DTL

Adjusts the detail amount.

CRISP

Reduces the low-amplitude noise component in the detail signal.

LEV DEP

Sets so that the detail signal is not superimposed near the black level of a signal.

H/V RATIO

Adjusts the balance of the H and V of the detail signals.

PR-75

PED (R, G, B)

Adjusts the pedestal level of R, G and B signals. (Set at 20 mV.)

FLR (R, G, B)

Compensates the dispersion of the video signal due to the flare of R, G and B signals.

W.CLIP (R, G, B)

Sets the white clip level of R, G and B signals.

DCC (ON)

Change over the manual knee or the auto knee. This switch selects the manual knee and auto knee, when this switch set to ON, the machine functions as auto knee and knee point goes low.

PS-41

FOCUS (R, B, B)

Adjusts so that the amplitude in level of 5 MHz and 6 MHz on the multi-burst chart is maximized.

SG-63A (Rear side of camera)

H BLK WIDTH S3

Increases/decreases the horizontal blanking width by 70 nsec.

H PHASE RV7

Adjusts the phase of the camera video signal in the external synchronous mode.

EXT SC PHASE S1

Inverts the subcarrier phase of the camera video signal by 180° in the external synchronous mode.

EXT SC PHASE RV1

Adjusts the subcarrier phase of the output signal in the external synchronous mode.

INT SC PHASE RV2

Adjusts the subcarrier phase of the output signal in the internal synchronous mode. (Be sure not to turn RV2 except when adjustment is out of condition.)

CF S2

Turns on or off the color framing pulse.

CABLE COMPE S5

In the external synchronous mode, turns off the GEN LOCK signal from a connection cable under 150m and turns on the signal for one exceeding 150m.

EN-33A

BARS (EBU/95%)

Switches the color bar signal to the EBU specification or to "95%".

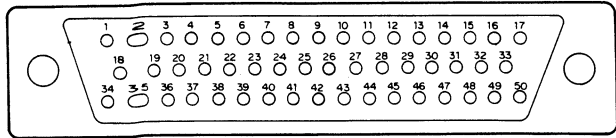
BLACK BAL (U, V)

Performs the black balance (carrier balance) adjustment of the composite video signal.

2-3. CONNECTOR'S PIN FUNCTION

50PIN CON NECTOR

— EXT SIDE —

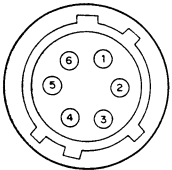


| PIN NO. | SIGNAL | SPECIFICATION |
|---------|--------------------|---|
| 1 | GENLOCK IN | VBS or BS input for GENLCOK $Z_i = 1\text{ k}\Omega$ 1 Vp-p |
| 2 | GENLOCK(GND) | |
| 3 | +9V OUT | +9V output |
| 4 | −9V OUT | −9V output |
| 5 | UNREG(GND) | GND for +12V input |
| 6 | UNREG(GND) | |
| 7 | RED VIDEO OUT | Red signal output $Z_o = 75\Omega$ 0.7 Vp-p (No SYNC signal provided) |
| 8 | GRN VIDEO OUT | Green signal output $Z_o = 75\Omega$ 0.7 Vp-p (No SYNC signal provided) |
| 9 | BLU VIDEO OUT | Blue signal output $Z_o = 75\Omega$ 0.7 Vp-p (No SYNC signal provided) |
| 10 | RGB(GND) | GND for RGB signal |
| 11 | NC | Non connection |
| 12 | NC | |
| 13 | NC | |
| 14 | SD IN/OUT | Input/output of serial data for camera control |
| 15 | MIC(GND) | Microphone audio output $Z_o \geq 600\Omega$ −60 dBm balanced |
| 16 | MIC(X) OUT | |
| 17 | MIC(Y) OUT | |
| 18 | RET VIDEO IN | Return video input |
| 19 | RET VIDEO(GND) | |
| 20 | AU/ZEB CONT IN/OUT | Audio input, Zebra signal ON/OFF output |
| 21 | NC | Non connection |
| 22 | TAPE IND 1 IN | Tape remaining indicator signal input |
| 23 | TAPE IND 2 IN | |
| 24 | REC ALARM IN | Rec/tally signal input $Z_i = 20\text{ k}\Omega$ |
| 25 | BATT IND IN | Residual battery alarm signal input $Z_i = 300\Omega$ |
| 26 | PB REF IN | VF video selecting signal input $Z_i = 100\text{ k}\Omega$ |
| 27 | VTR START/STOP OUT | VTR start/stop signal output |
| 28 | NC | Non connection |
| 29 | R−Y OUT | R−Y color difference signal output $Z_o = 75\Omega$ 0.7 Vp-p |
| 30 | R−Y(GND) | |
| 31 | AUDIO CONT OUT | Audio gain control signal output DC 0 ~ 7V |
| 32 | VTR SAVE OUT | VTR save signal output SAVE: 4.5V STBY: 0V OR OPEN |
| 33 | AUDIO MONITOR IN | Audio signal input |
| 34 | SYNC OUT | SYNC pulse output \square 5 Vp-p |
| 35 | NC | Non connection |
| 36 | SHUT CLOSE IN | Shutter control signal input VTR REW: 4.5V |
| 37 | CF OUT | CF pulse output |

| PIN NO. | SIGNAL | SPECIFICATION |
|---------|---------------------|--|
| 38 | RET VIDEO CONT OUT | VF video selecting signal output PB: 0V |
| 39 | UNREG IN | Power supply input +12V |
| 40 | UNREG IN | |
| 41 | Y(VTR) OUT | Luminance signal output $Z_o = 75\Omega$ 1 Vp-p SYNC negative |
| 42 | Y(VTR) (GND) | |
| 43 | EN VIDEO(VTR) OUT | Composite video signal output $Z_o = 75\Omega$ 1 Vp-p SYNC negative |
| 44 | EN VIDEO(VTR) (GND) | |
| 45 | NC | Non connection |
| 46 | NC | |
| 47 | NC | |
| 48 | NC | |
| 49 | B−Y OUT | B−Y color difference signal output $Z_o = 75\Omega$ 0.7 Vp-p |
| 50 | B−Y(GND) | |

REMOTE CONNECTOR (6PIN)

— EXT SIDE —



| PIN NO | SIGNAL | SPECIFICATION |
|--------|--------------|--|
| 1 | NC | Non connection |
| 2 | SD IN/OUT | Input/output of serial data for camera control |
| 3 | UNREG(GND) | GND for +12V input |
| 4 | GENLOCK(GND) | VBS or BS input for GENLOCK |
| 5 | GENLOCK OUT | |
| 6 | UNREG OUT | Power supply output +12V |

| ZOOM LENS | | |
|-----------|--------------------------------|-----------|
| 7x | A7x7B RM28 | : FUJINON |
| 12x | A12x9B ERM (with extender) | : FUJINON |
| 13x | J13x9B4 IRS-2B (with extender) | : CANON |
| 14x | A14x9B ERM28 (with extender) | : FUJINON |
| 14x | A14x10B RM28 | : FUJINON |
| 15x | J15x9.5B4 KRS-B | : CANON |

1. **Iris Sensitivity Adjustment**

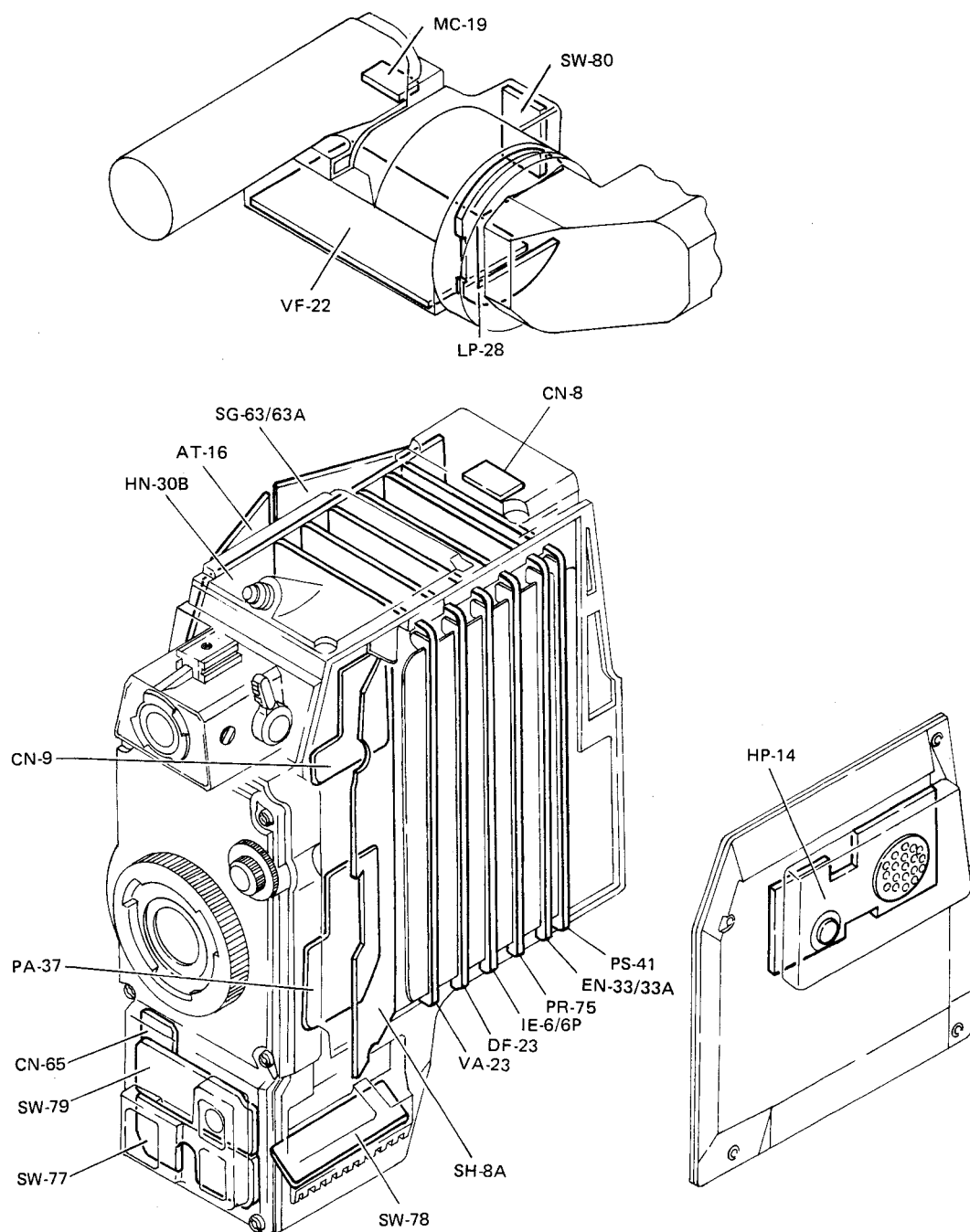
When the conventional 6-pin connector lens is used, the iris sensitivity should be adjusted using an iris sensitivity VR or gain VR attached to the lens grip.

Adjustment: When light of 2,000 luxes enter with the AUTO/MANU switch set at AUTO, set the VR just prior to iris hunting.
2. **Mechanical Back Focus Adjustment**
 - 1) Adjust Mechanical Back Focus in the green channel by using a lens adjusting lever.
(The pick-up tube in the green channel should not be shifted because of a reference level.)
 - 2) Adjust Mechanical Back Focus in the red and blue channels on the pick-up tube side.
 - 3) Adjust the horizontal and vertical sizes in the red and blue channels.



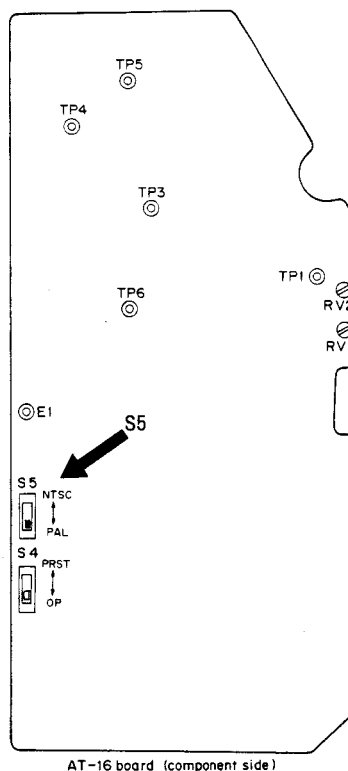
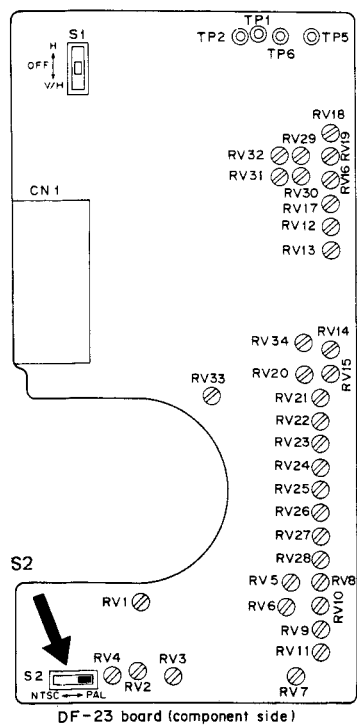
SECTION 3 SERVICE INFORMATION

3-1. BOARD ARRANGEMENT



3-2. NOTES ON BOARD REPLACEMENT

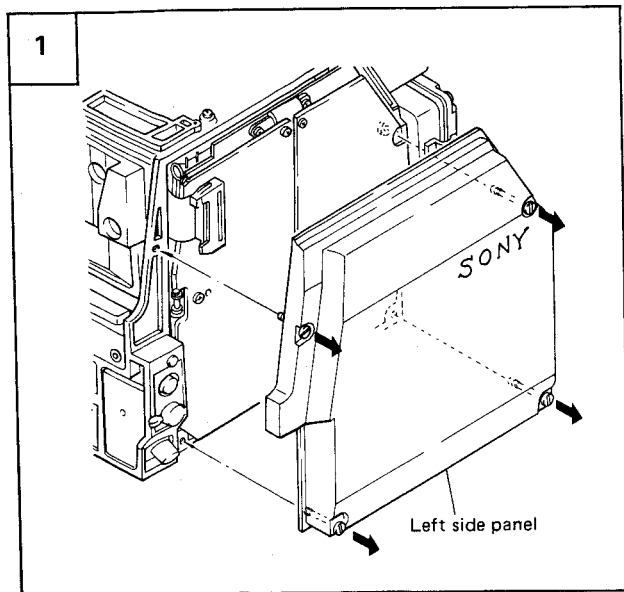
The DF-23 board and AT-16 board can be used in common for NTSC and PAL systems. The switching action of NTSC to PAL or PAL to NTSC is performed using the switches on the board. When used for the NTSC system, set S2 on the DF-23 board and S5 on the AT-16 board at the NTSC position as shown in the figure below. When used for the PAL system, set the switches at the PAL position.



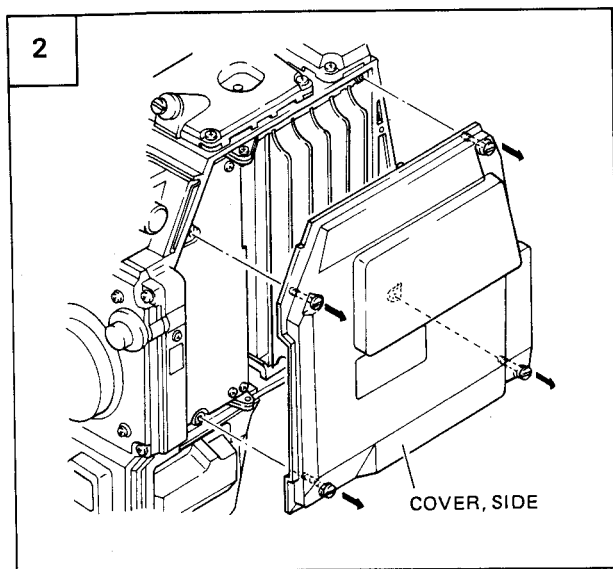
3-3. REPLACEMENT OF CAMERA TUBE

[REPLACEMENT OF RED TUBE]

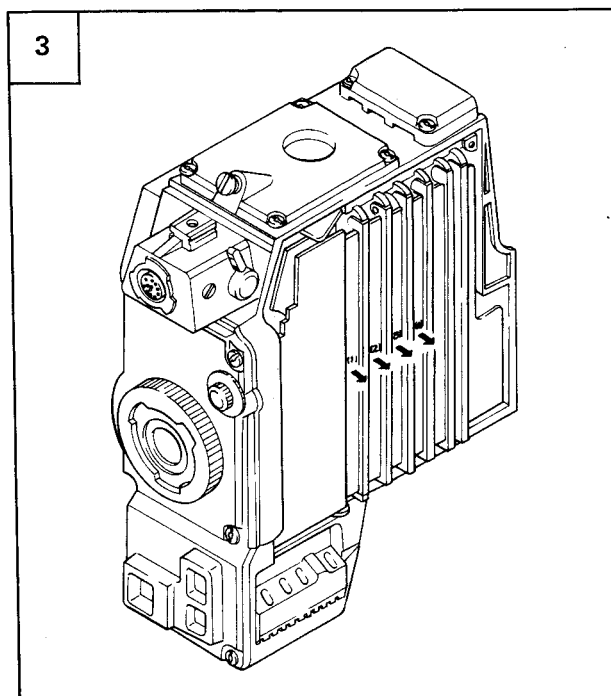
1. Loosen the four screws and remove the side cover.



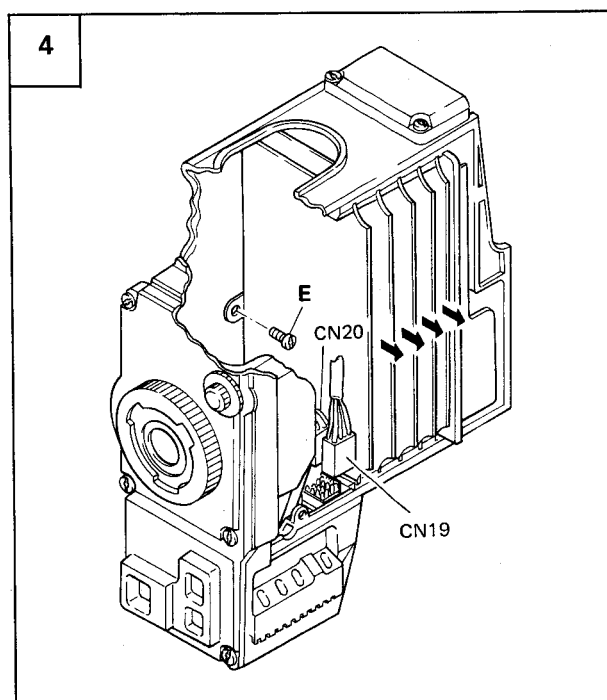
2. Loosen the four screws and remove the side cover.



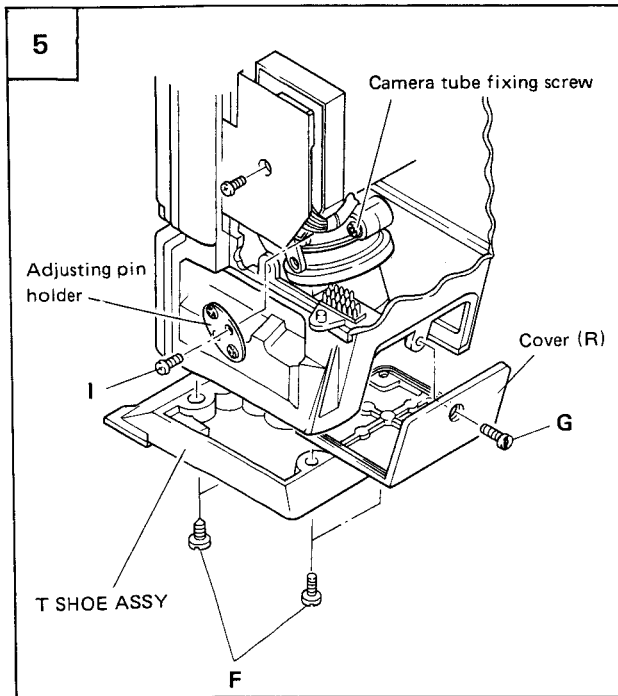
3. Pull out the boards (1), (2), (3) and (4) by using a board extractor.



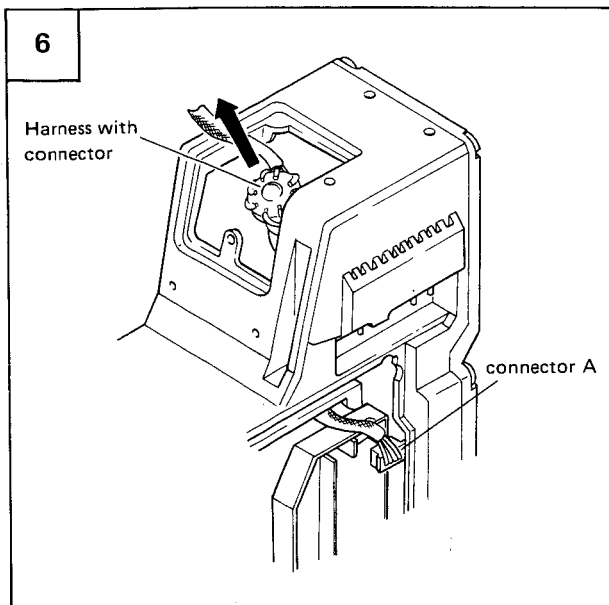
4. Remove the four screws E and pull out the four shield plates. Remove the connectors CN19 and CN20.



5. Remove the four screws F and remove the T-SHOE ASSY. Remove the three screws G to take out the cover (R). Remove the two screws I and take out the adjusting pin holder. Loosen the camera tube fixing screw.

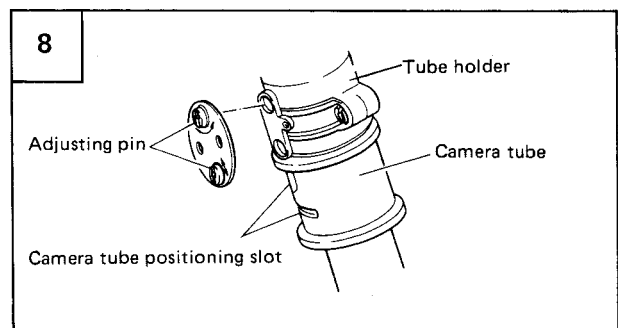


6. Remove the connector A from the PA board. Take out the camera tube from the tube holder. Remove the harness provided with connector from the camera tube.



7. Confirm that a new camera tube has its clear surface.

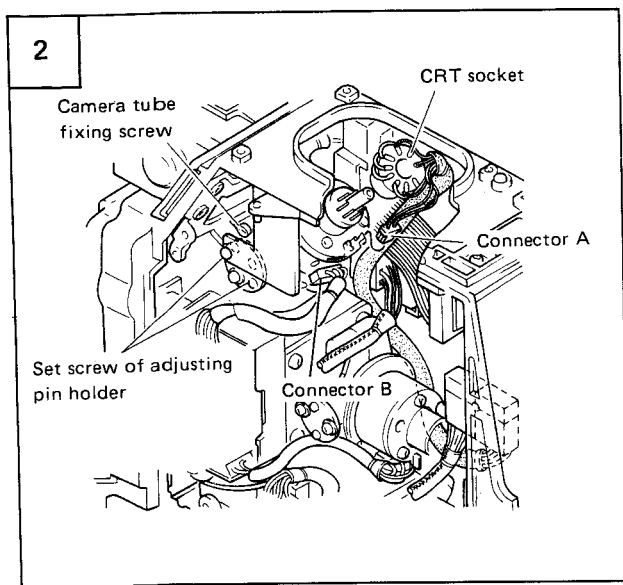
8. Insert a new replacement camera tube into the tube holder. At this time, insert it so that the camera tube positioning slot is located toward you. The positioning relation between the adjusting pin and camera tube positioning slot should be as shown in the figure.



9. When replacement of a RED tube is completed, perform the following section 4 items: RED Tube for Registration Adjustment and RED Tube for Adjustment of Video Signal System.

[REPLACEMENT OF BLUE TUBE]

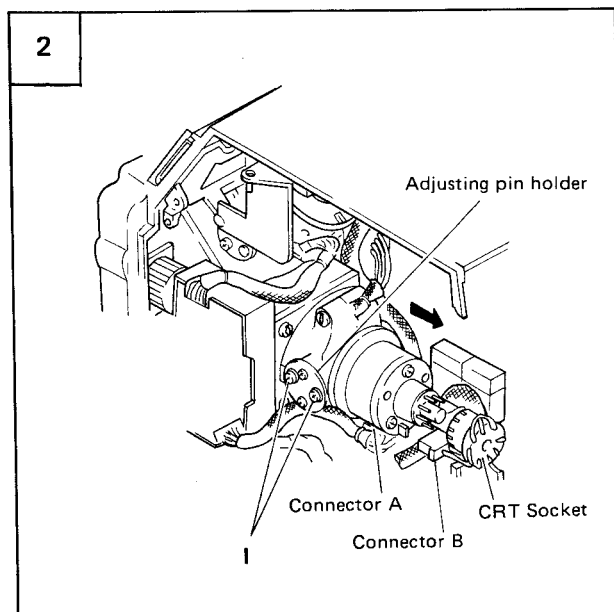
1. Perform Steps 1, 2, 3 and 4 in Replacement of RED tube.
2. Disconnect the CRT socket and the connectors A and B. Remove the two set screws of an adjusting pin holder to remove the pin holder. Loosen the camera tube fixing screw, and then take out the camera tube.



3. Confirm that a new camera tube has its clear surface.
4. Insert a new replacement camera tube into the tube holder. At this time, insert it so that the camera tube positioning slot is located toward you.
5. When replacement of a BLUE camera tube is completed, perform the following section 4 items: BLUE Tube for Registration Adjustment and BLUE Tube for Adjustment of Video Signal System.

[REPLACEMENT OF GREEN TUBE]

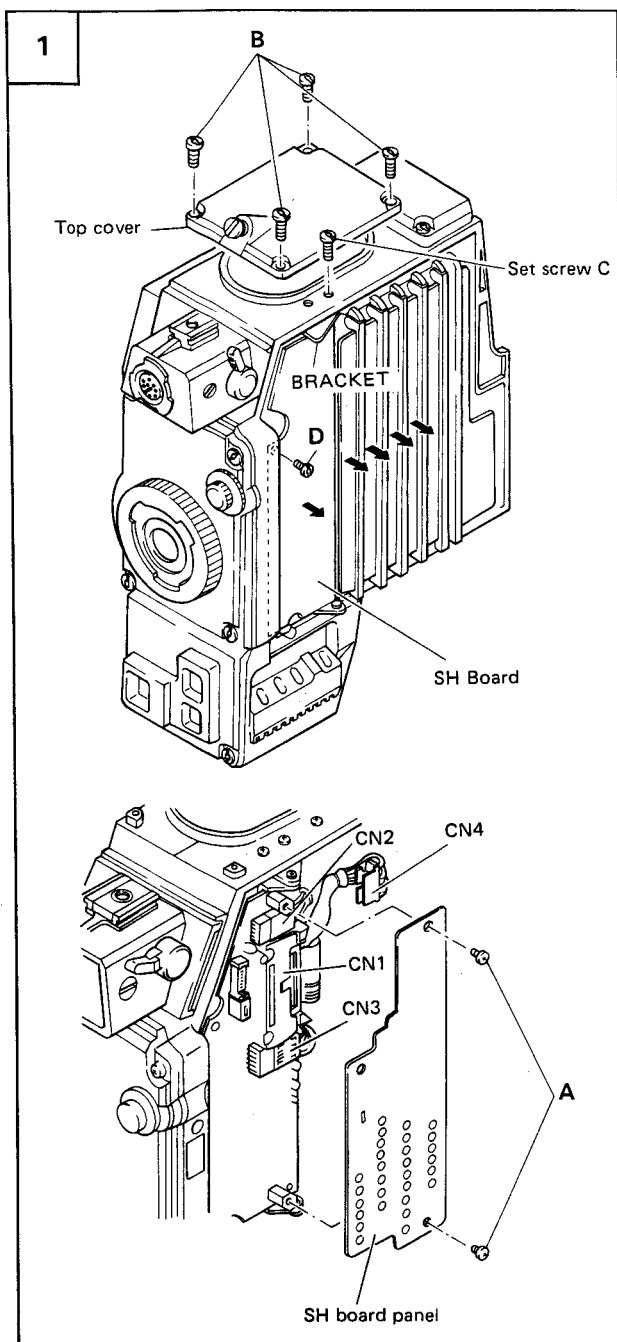
1. Perform Steps 1, 2, 3 and 4 in Replacement of RED tube.
2. Disconnect the CRT socket and the connectors A and B. Then, remove the two screws I and remove the adjusting pin holder to pull out the camera tube in the direction indicated by the arrow.



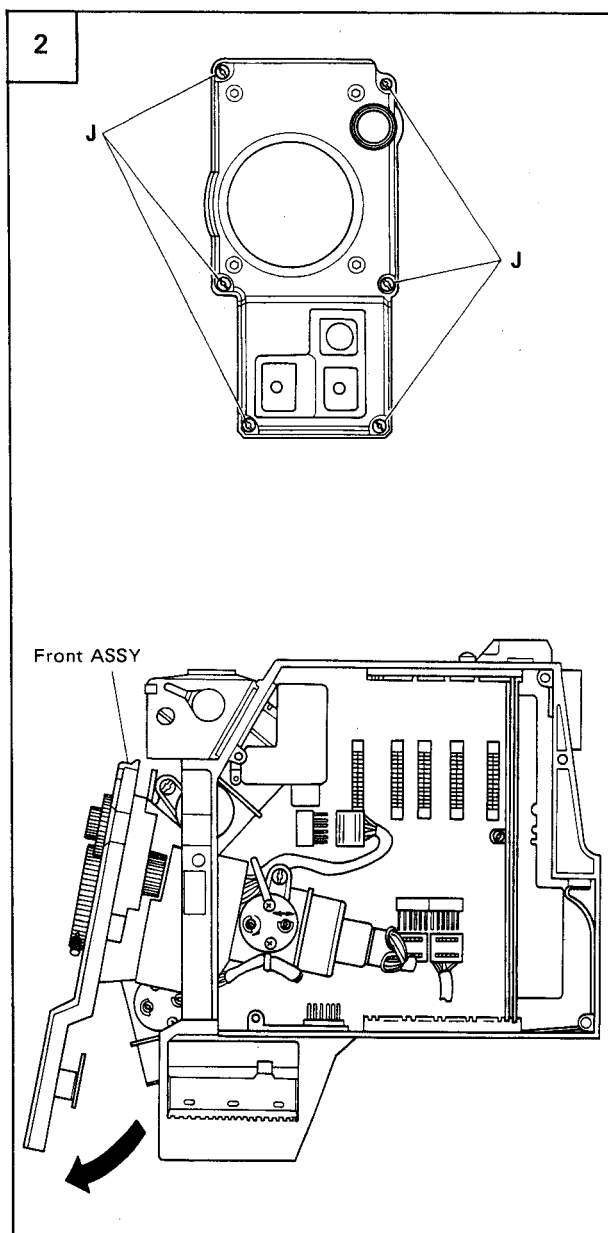
3. Confirm that a new camera tube has its clear surface.
4. Insert a new replacement camera tube into the tube holder. At this time, insert it so that the camera tube positioning slot is located toward you.
5. When assembling, be sure to pay attention to the harness position.
(Refer to the figure shown in Step 6 in Replacement of Shutter.)
6. When replacement of a GREEN camera tube is completed, perform the following section 4 items: Registration Adjustment and Adjustment of Video Signal System.

3-4. REPLACEMENT OF SHUTTER

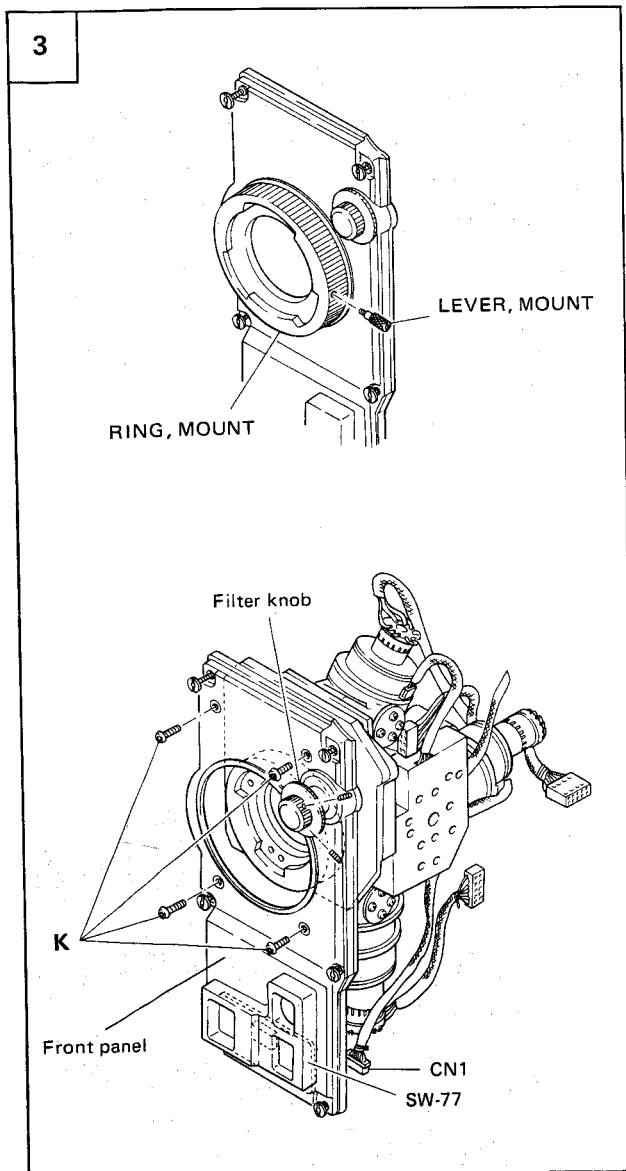
1. Remove the four screws B and remove the top cover. Remove the connector CN4 and two screws A on the SH board, remove the SH board panel, and then disconnect the connectors CN1, CN2 and CN3. Remove the two bracket set screws C and remove the SH board together with the bracket. Perform Steps 1, 2, 3 and 4 in Replacement of Red tube.



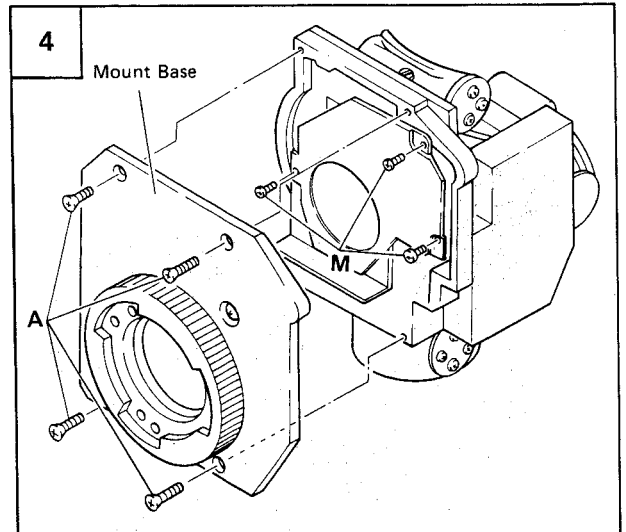
2. Remove the six front Assy fixing screws J. Pull out the lower part of the front Assy, and then remove the front Assy itself from the chassis. At that time, disconnect all the connectors from the front Assy, too.



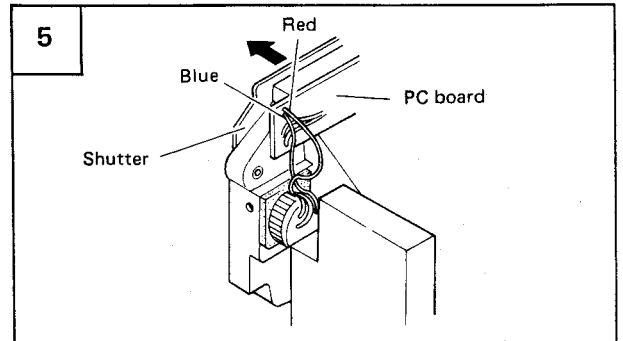
3. Remove the mount lever from the mount ring. Loosen the two set screws of a filter knob by using a L-shaped hexagonal wrench and remove the filter knob. Disconnect the connector CN1 on the SW-77 board, remove the four screws K by using a L-shaped hexagonal wrench (2.5), and then remove the front panel.



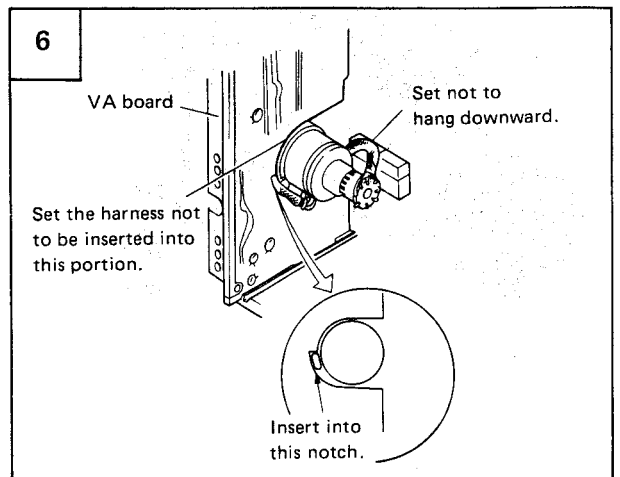
4. Remove the four screws A and remove the mount base from the optical block. Remove the three shutter fixing screws M.



5. Remove the red and blue lead wires from the printed circuit board by using a soldering iron. Pull out the shutter gently.

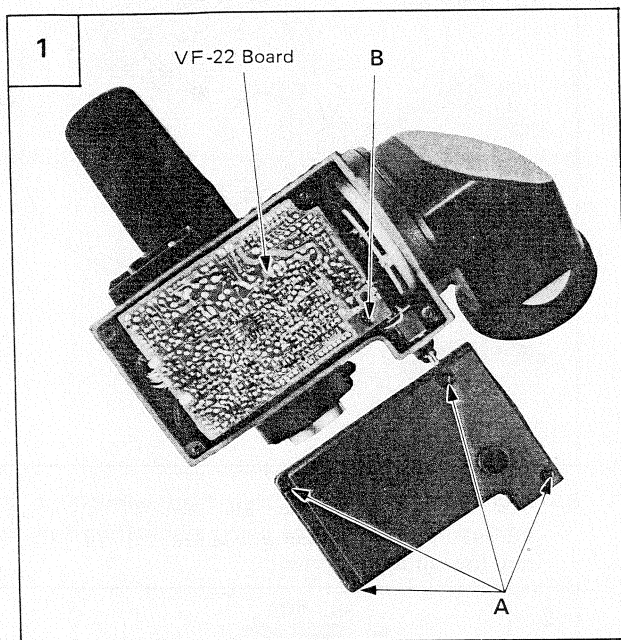


6. For replacement of a new shutter, attach in opposite procedures to disassembly. When assembling, be sure to pay attention to the harness position as shown in figure below.



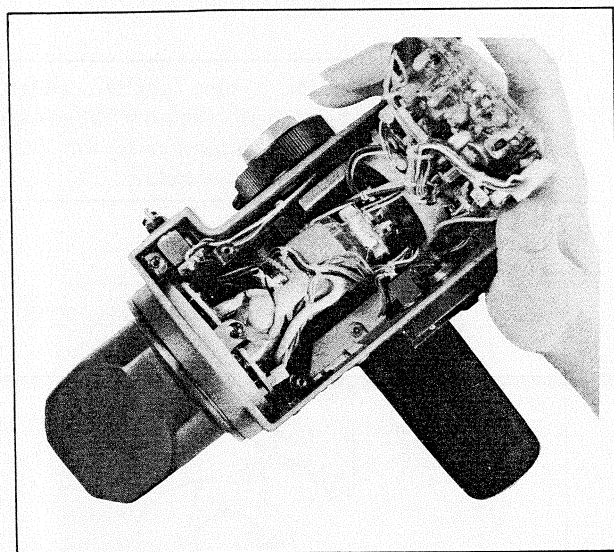
3-5. REPLACEMENT OF CRT

1. Remove the 4 rear cover screws (A) and take off the cover. Next, remove a fixing screw (B) of the VF-22 Board and remove the Board.

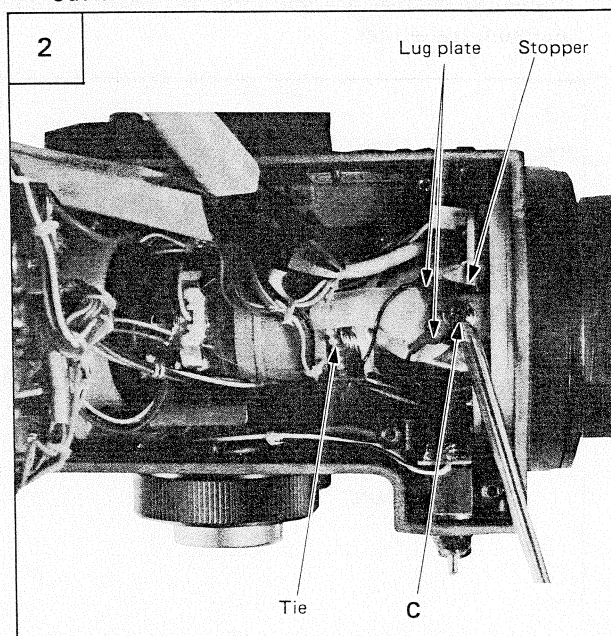


Note: Remember the arrangement of the harness in the viewfinder.

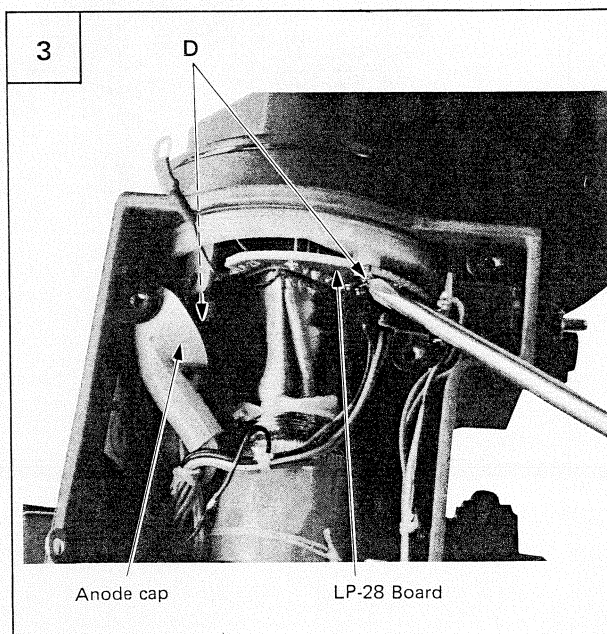
When you assemble the viewfinder after replacement of CRT, you should arrange the harness of viewfinder to prevent a damage of harness at the original position as shown below.



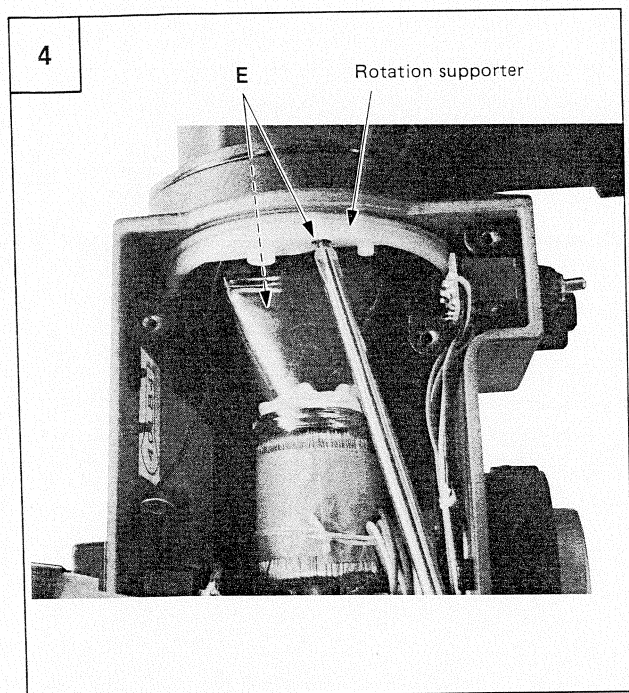
2. Turn the VF Tube so that the anode cap of CRT is upward. Remove the screw (C) and take off the stopper and 2 lug plates. Cut a tie.



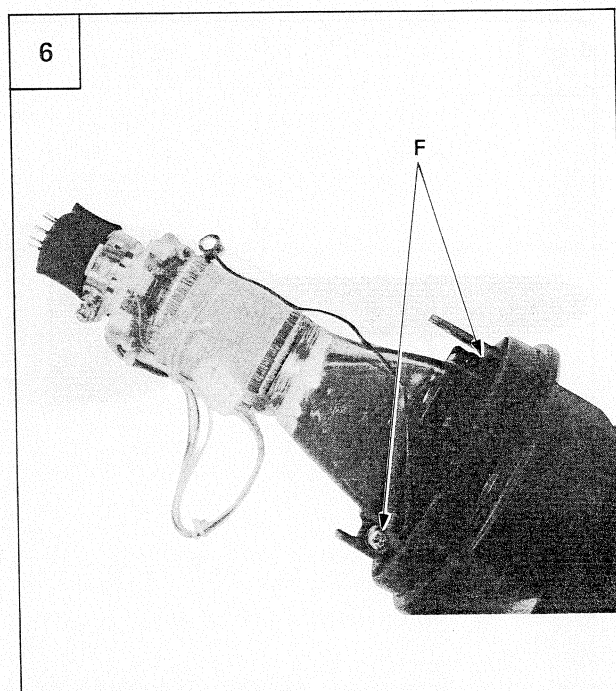
3. Remove the anode cap from the CRT. Remove the 2 fixing screws (D) and take off the LP-28 board.



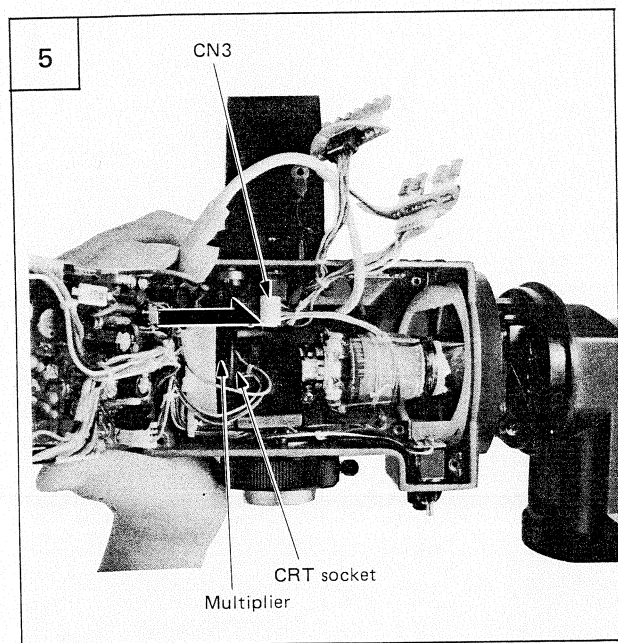
4. Remove the 2 fixing screws (E) and take off the rotation supporter.



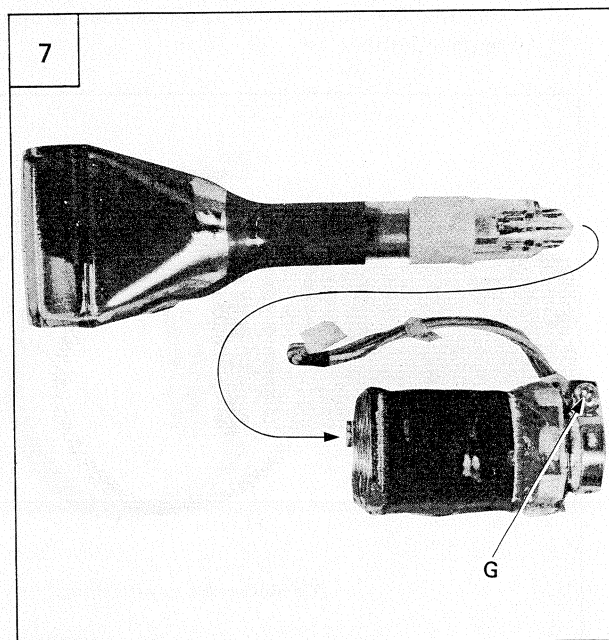
6. Loosen the 2 CRT retaining screws (F) and remove the CRT from the VF Tube.



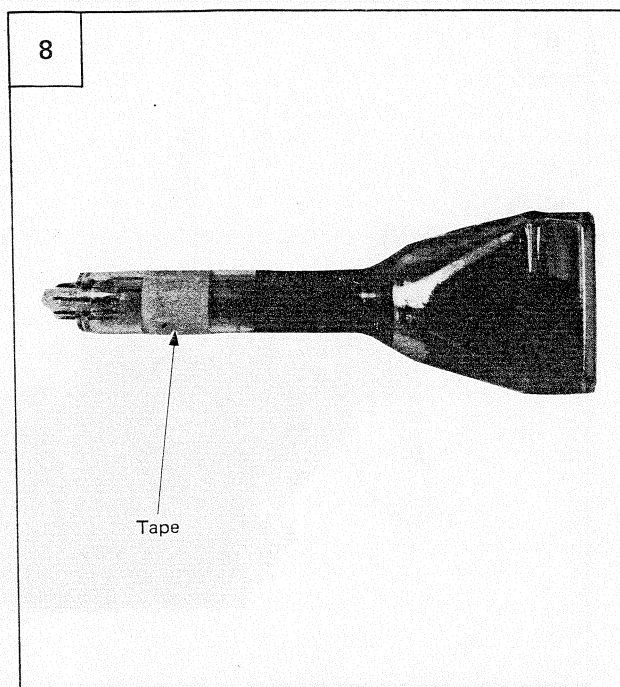
5. Pull the CRT out of the multiplier, and remove the CRT socket from the CRT. Disconnect the CN3 of VF-22 board.



7. Loosen the Deflection Yoke retaining screw (G) and remove the Deflection Yoke from the CRT.

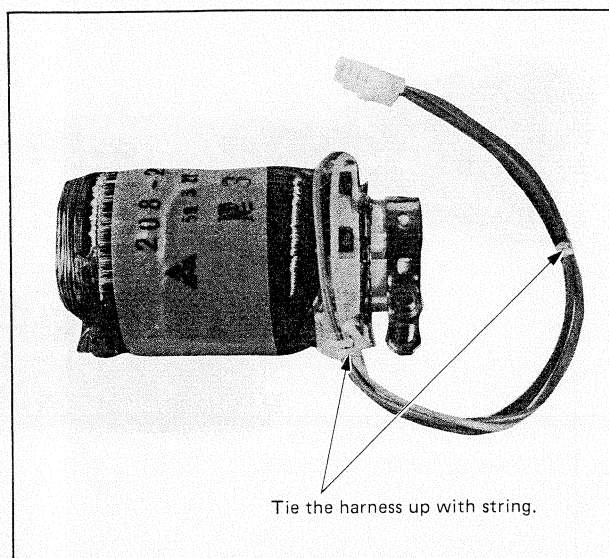


8. Tape around the neck of new CRT where the Deflection Yoke is to be attached, with a mending tape.



9. Assemble the viewfinder by reversing the steps.

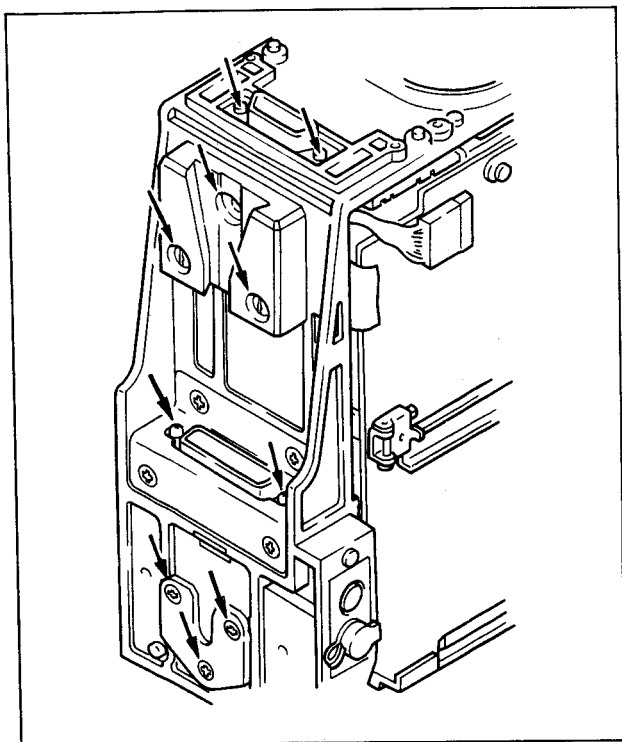
Note: If you replace a Deflection Yoke, please reform the new Deflection Yoke as shown below before replacement.



3-6. PRECAUTIONS ON REPLACEMENT OF VTR CONNECTOR (50-PIN CONNECTOR)

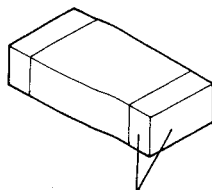
The VTR connector (50-pin connector) is attached using a high-precision special tool (CV positioning) so as to keep the accurate positioning relation with VTR mount (C shoe) and to dock with any of BVV-1/1A or BVV-1PS/1APS. Therefore, be sure not to loosen or remove the ten fixing screws shown in the figure below.

For replacement of the VTR connector (50-pin connector), contact your Sony dealer.



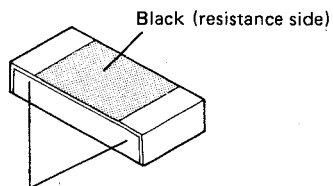
3-7. REPLACEMENT OF CHIP PARTS

Capacitor



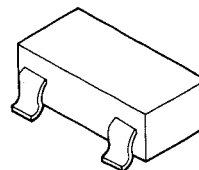
Covered with electrode.

Resistor



Not covered with electrode.

Diode and transistor



Tools required:

Soldering iron of approx. 20W

(Use a temperature controller, if possible, which can control the iron temperature to $270 \pm 10^\circ\text{C}$.)

Braided wire (SOLDER TAUL)

Solder (A solder of 0.6 mm in diameter is recommended.)

Tweezers

Soldering conditions:

Iron temperature of $270 \pm 10^\circ\text{C}$

A connector should be soldered within 2 seconds.

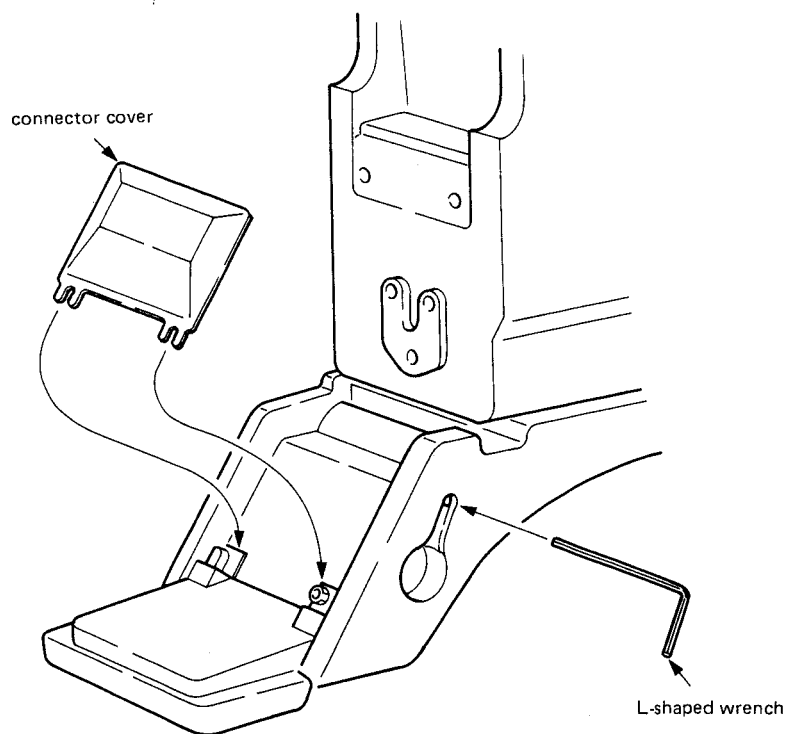
Procedures

1. To remove a resistor or capacitor, place the tip of a soldering iron on chip parts to heat the parts, and then move it horizontally for removal while being desoldered. For removal of a diode or transistor, heat the one side, with two pins, of chip parts at the same time, set the parts up when desoldered, and remove the two pins. And then, remove the pin on another side.
2. Absorb solder by using a braided wire to smooth the land surface of board after removal.
3. Confirm by visual check that no pattern of the removed chip parts is peeled off and no adjacent parts is damaged or bridged.
4. Perform a thin pretinning on the pattern.
5. Place new chip parts on the pattern to solder its both sides.

The chip parts removed should not be used again.

For details, refer to CHIP COMPONENTS MANUAL, Sony's parts No. 9-972-289-01 prepared by Sony Corporation.

1. Tripod attachment
Tripod bracket is not necessary at attachment of tripod adaptor.
2. L-shaped wrench keeping
New shoulder pad can keep L-shaped wrench which is used at attachment or removal of BVV-1/BVV-1 A, CA-3, CA-30 or CA-31. (refer to figure)
3. Connector cover keeping
New shoulder pad has been provided keeping space for the connector cover which is removed at attachment of CA-30 or CA-31. (refer to figure)



SECTION 4 ALIGNMENT

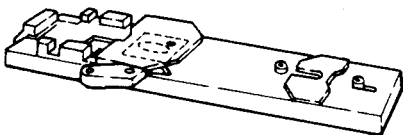
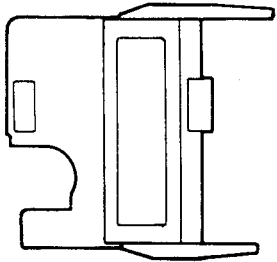
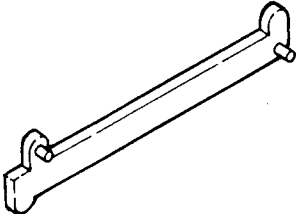
BEFORE ADJUSTMENT

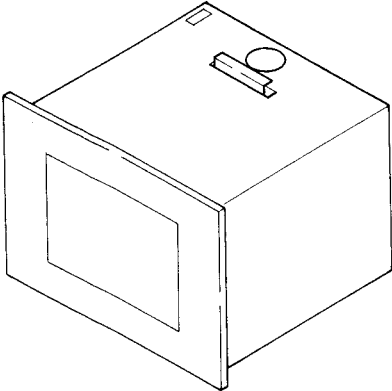
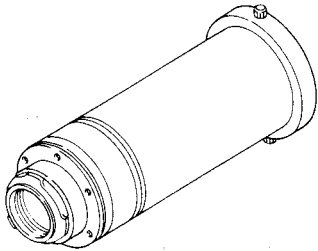
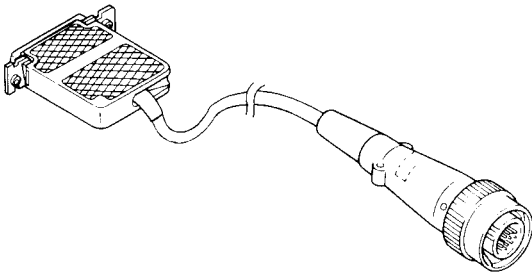
1. In Section 4-1, as a preparation for adjustment, equipment required, connection diagram, initial setting, etc. are described.
2. In Section 4-2, the essential adjustment points for overhauling including all the necessary adjustment points are described. Adjustment should be performed from the beginning to the end. A partial adjustment is not enough and it does not mean complete adjustment.
3. In Section 4-3, adjustment procedures required for partial adjustments are shown as flow charts. Be sure to make adjustment in accordance with the flow charts.

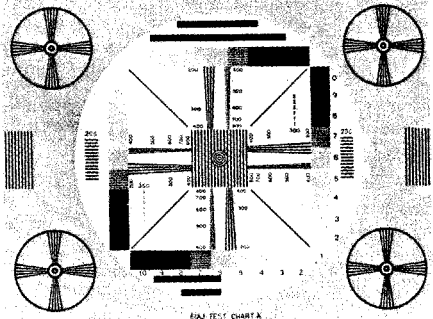
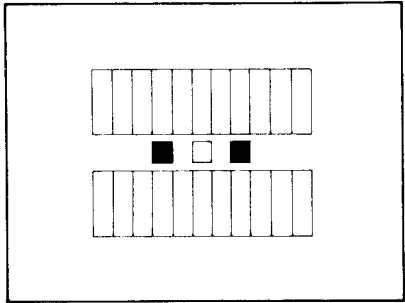
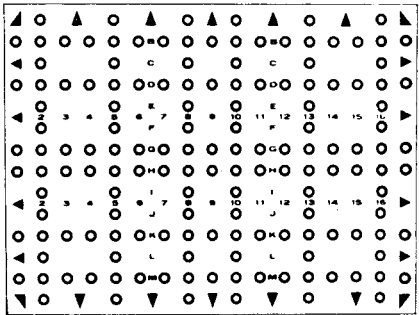
4-1. PREPARATION

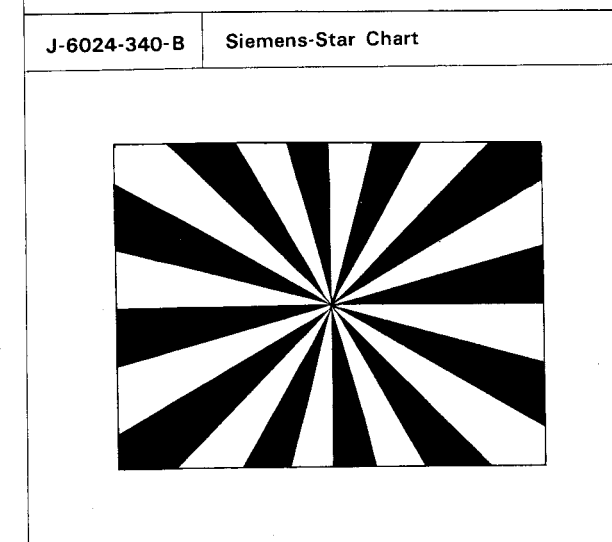
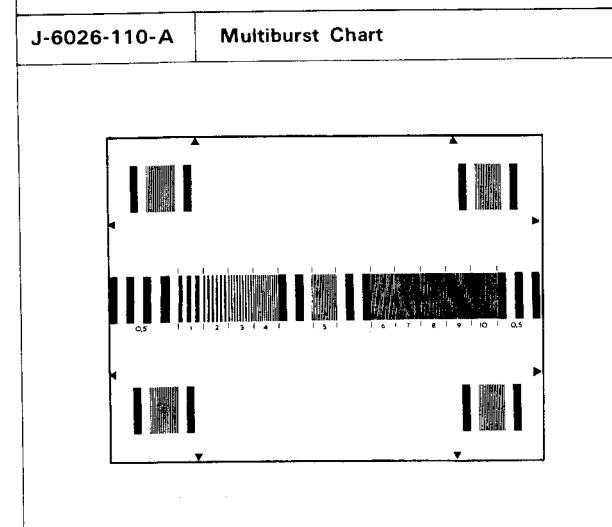
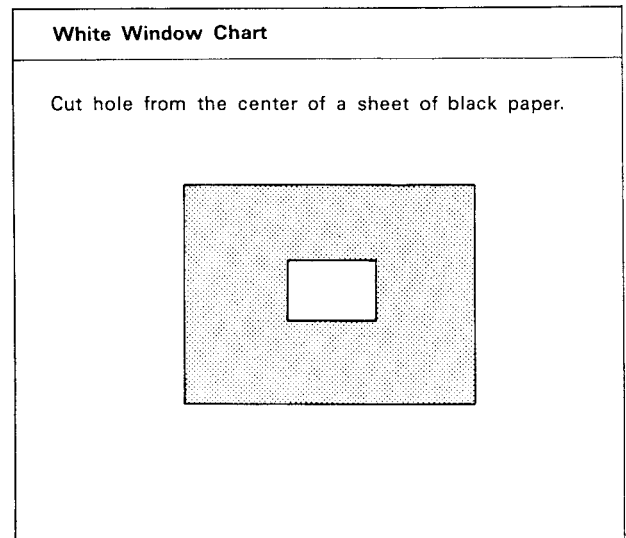
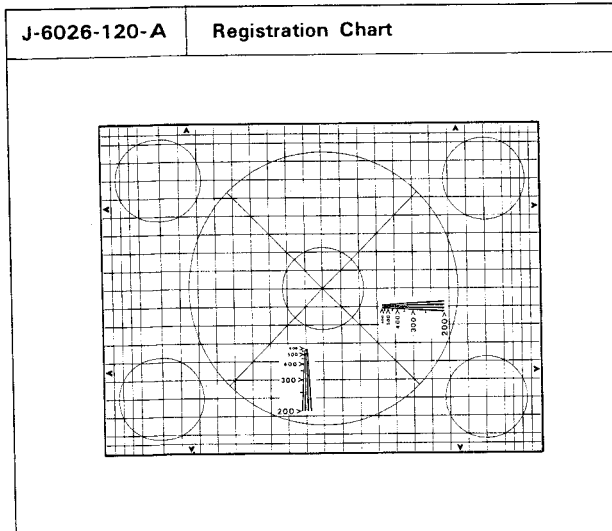
4-1-1. Equipment Required

- Oscilloscope
- Waveform Monitor (WFM)
- Vectorscope
- B/W Monitor (H resolution: more than 700 TV lines)
- Test Signal Generator (Cross-hatching signal can be output.)
- Frequency Counter
- Digital Voltmeter
- CF Pulse Generator (Sony BVG-10P)
- AC Adaptor (Sony AC-500CE or CMA-7CE)
- Camera Adaptor (Sony CA-3 or CA-30P)

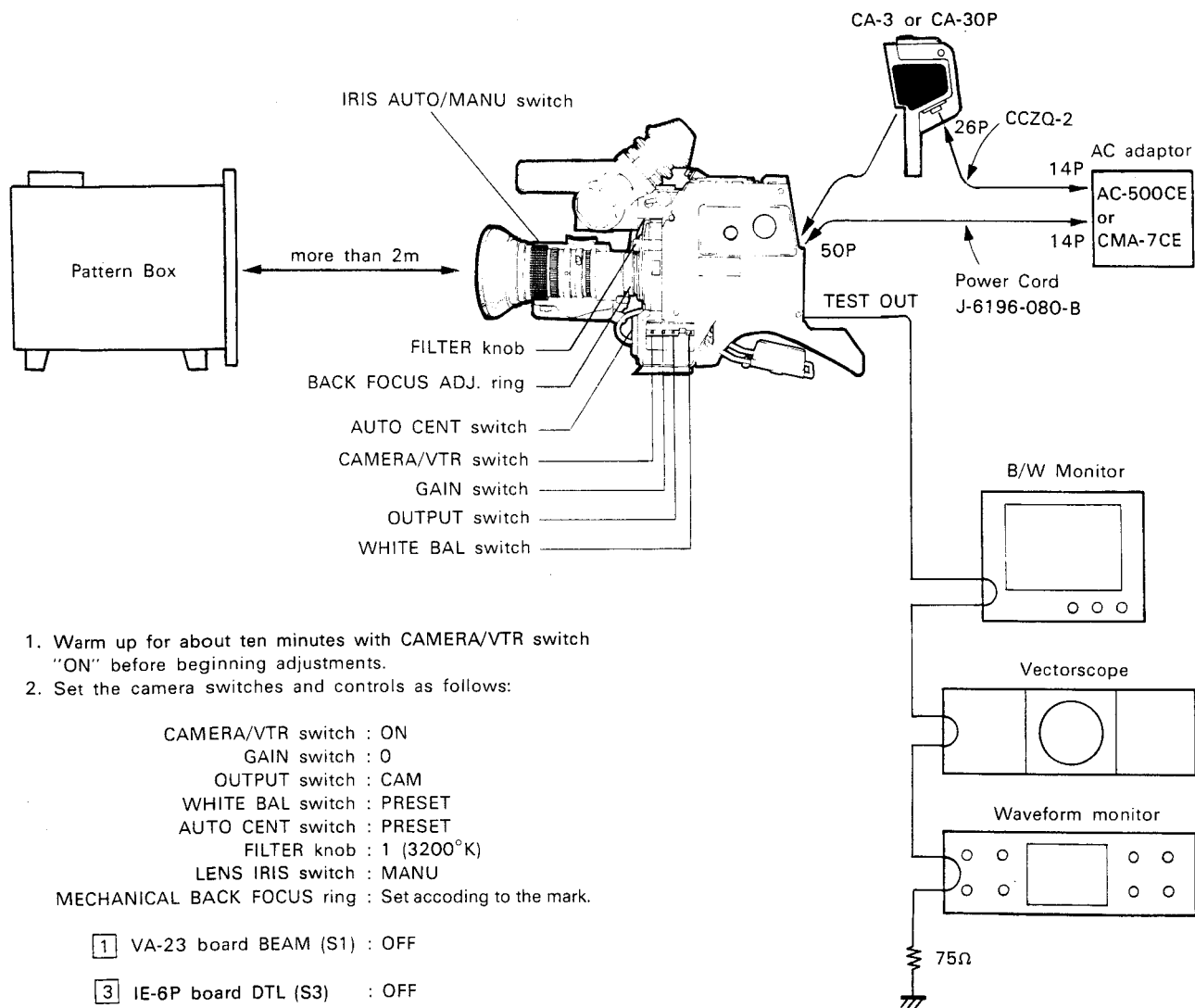
| | |
|---|-------------------------|
| A-7408-015-C | Tripod Adaptor VCT-12 |
|  | |
| A-7511-898-A | Extension Board (EX-24) |
|  | |
| X-3678-613-0 | Board Extractor |
|  | |

| | |
|---|------------------------------------|
| J-6029-140-A | Pattern Box PTB-500 (AC90 to 240V) |
| (WITH COLOR-BAR CHART) | |
|  | |
| J-6022-510-A | Pattern Projector |
|  | |
| J-6196-080-B | DC Power Cord |
|  | |

| | |
|--|--------------------|
| J-6026-100-A | Resolution Chart |
|  | |
| J-6026-130-A | Grayscale Chart |
| Stick the velvet (black) at both ends of white pattern in the center so as to avoid the light leakage. | |
|  | |
| J-6021-890-A | Ball-Pattern Chart |
|  | |



4-1-2. Connection and Initial Setting



4-2. ESSENTIAL ADJUSTMENT

This section describes alignment for overhauling. Be sure to make adjustment from the beginning through the end. When performing partial adjustments, adjustments should be made in accordance with the procedures of the flow charts shown in Section 4-3.

[POWER SUPPLY ADJUSTMENT]

- Notes:**
- The adjustment is not necessary if error is within 3% of rated voltage.
 - When this adjustment is made, all of the following will be required.
 - Step 4-2-1 through step 4-2-4, should be adjusted in order.

To be extended : PS-41 board

4-2-1. +9.5V Adjustment

Equipment : Digital voltmeter
 To be measured : TP2/PS-41 board
 (≡ GND/extension board)
 To be adjusted : ⚙ RV2/PS-41 board
 Specification : $+9.5 \pm 0.01V$ DC

4-2-2. +9.0V Adjustment

Equipment : Digital voltmeter
 To be measured : A19 or B19 (≡ GND)/extension board
 To be adjusted : ⚙ RV3/PS-41 board
 Specification : $+9.0 \pm 0.01V$ DC

4-2-3. +7.3V Adjustment

Equipment : Digital voltmeter
 To be measured : TP3/PS-41 board
 (≡ GND/extension board)
 To be adjusted : ⚙ RV1/PS-41 board
 Specification : $+7.3 \pm 0.01V$ DC

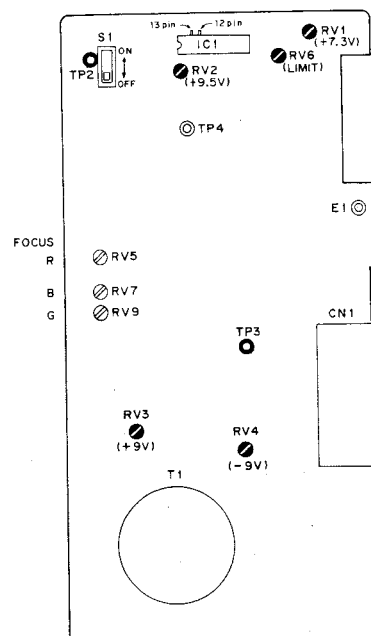
4-2-4. -9.0V Adjustment

Equipment : Digital voltmeter
 To be measured : A1 or B1 (≡ GND)/extension board
 To be adjusted : ⚙ RV4/PS-41 board
 Specification : $-9.0 \pm 0.01V$ DC

4-2-5. Overcurrent Detect Adjustment

Equipment : Digital voltmeter
 (≡ GND/extension board)

1. Measure the voltage at pin 13 of IC1/PS-41 board and take note this value.
2. Adjust ⚙ RV6/PS-41 board so that the voltage at pin 12 of IC1/PS-41 board is 0.03V less than voltage measured in Step 1.



PS-41 board (component side)

[SYNC GENERATOR ADJUSTMENT]

- Notes:**
- Warm up the camera for about 15 minutes before adjustment.
 - Be sure in INT mode (Not in GENLOCK mode) Check not to be in the GENLOCK mode.

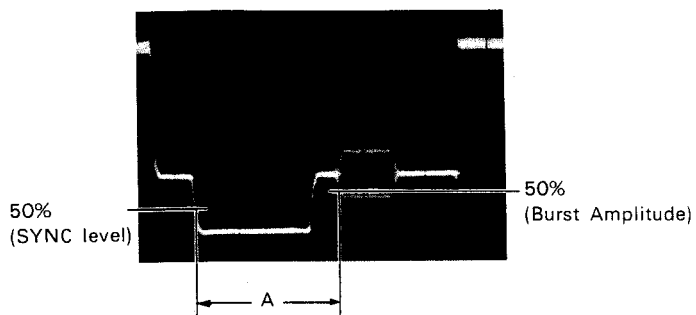
4-2-6. Subcarrier Frequency Adjustment

Equipment : Frequency counter
Connect an inductor (more than 100 μ H) in series with the probe of a counter.

To be measured : TP1 (カ E1)/SG-63A board
To be adjusted : ②X1/SG-63A board
Specification : $4,433,619 \pm 3$ Hz

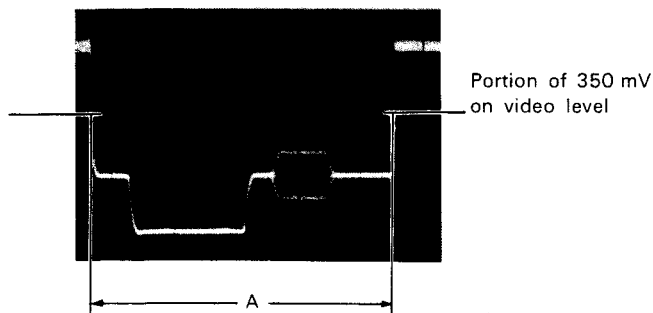
4-2-7. Color Burst Adjustment

Preparation: S8 [REG/ENC] /PR-75 board \rightarrow ENC
Equipment : Oscilloscope or waveform monitor
To be measured : TEST OUT terminal
To be adjusted : ②RV3/SG-63A board
Specification : $A = 5.6 \pm 0.1$ μ sec.



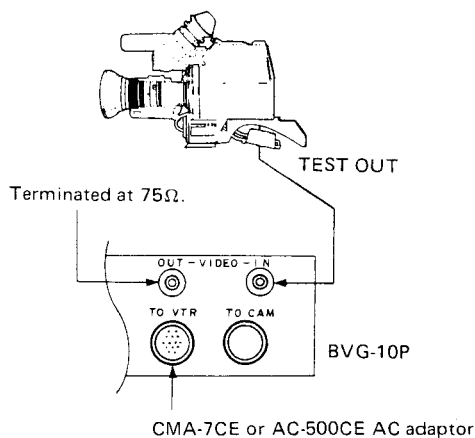
4-2-8. H. BLKG Phase Adjustment

Equipment : Oscilloscope
To be measured : TEST OUT terminal
Preparation : Shoot entire white of pattern box with auto position.
S8 [REG/ENC] /PR-75 board \rightarrow ENC
Lens iris : Adjust the iris control so that the video level at TEST OUT terminal is 700 mV.
To be adjusted : S3/SG-63A board
Specification : $A = 12.0 \pm 0.25$ μ s

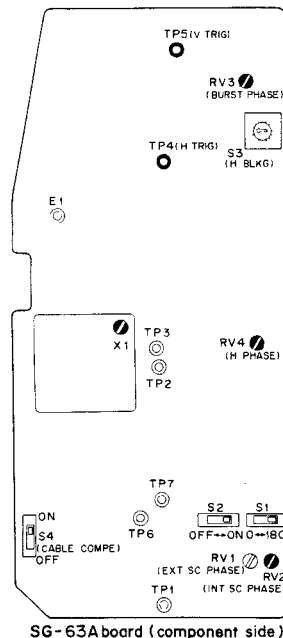
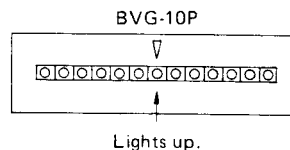


4-2-9. Internal SC Phase Adjustment

Equipment: CF pulse generator (BVG-10P)
Connection:

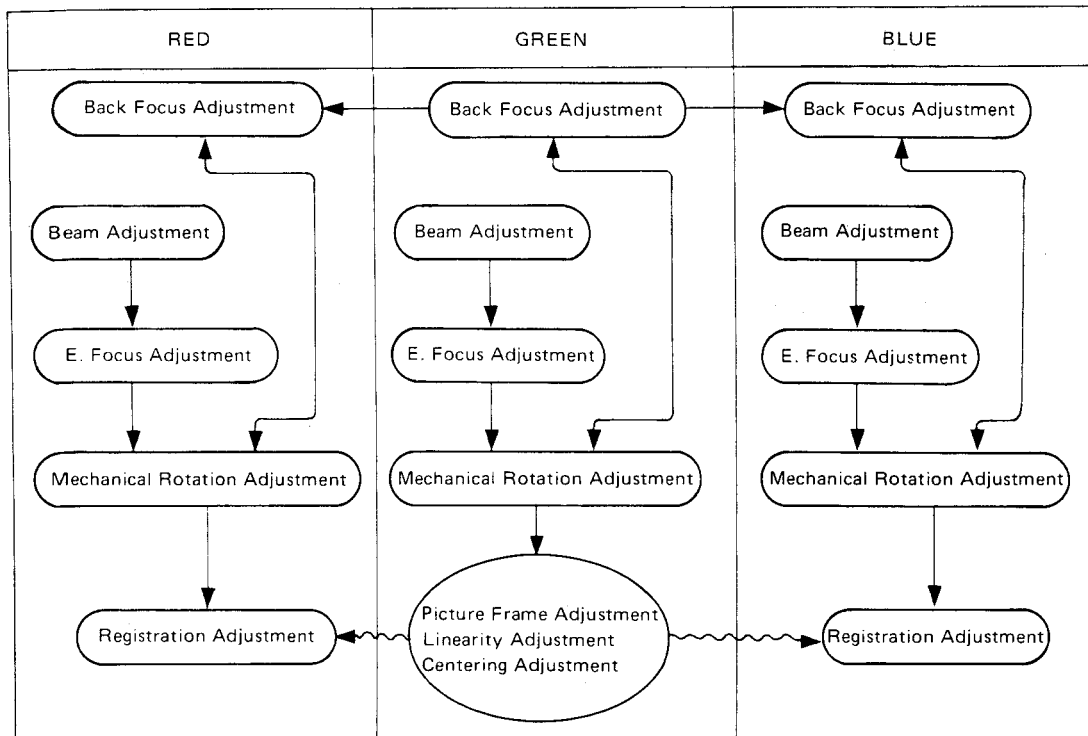


1. Select switch of the BVG-10P to SOURCE CHECK.
2. Adjust the ②RV2/SG-63A board so that the center LED lamp of the BVG-10P lights.



[REGISTRATION ADJUSTMENT]

For registration adjustment, each adjustment effect each other, therefore, the repeated adjustment will be required. Following table shows general idea of a relation for each adjustment. The coarse adjustment is as described below. Following table is shown the selection of the switches.

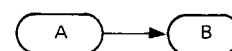


Each switch setting in registration adjustment in order to adjust the registration.

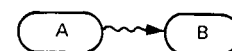
S3 **DTL** /IE-6P board → OFF

S8 **REG/ENC** /PR-75 board → REG

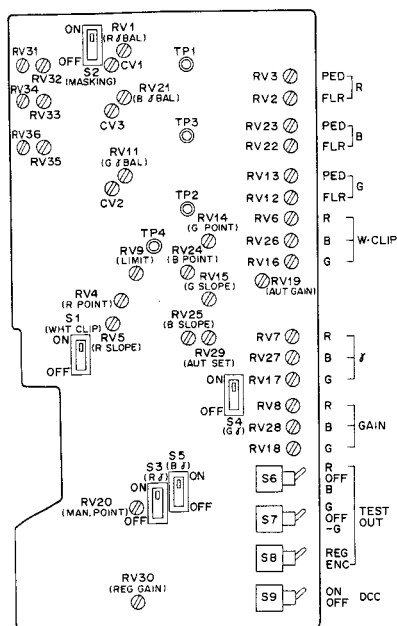
Notes: Meaning of arrows on above table:



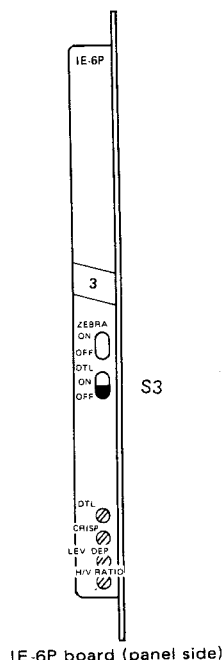
If A is adjusted, B should be checked or require to adjust.



Adjustment A effecting to B. (B conforms to A.)



PR-75 board (component side)

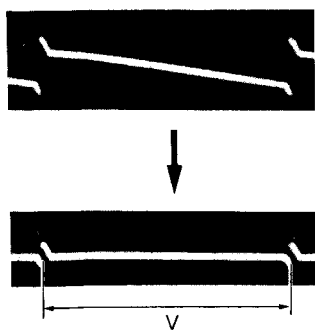


IE-6P board (panel side)

4-2-10. V. Deflection Balance Adjustment

Note: Calibrate the oscilloscope CH1 and CH2 gain.

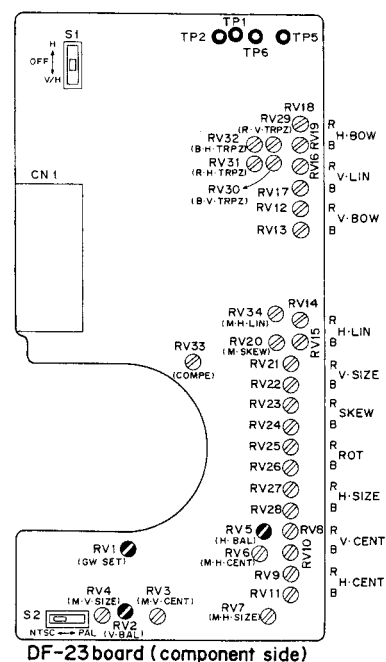
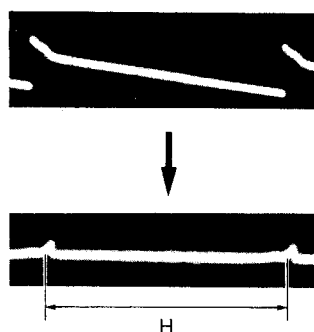
To be extended : DF-23 board
 Equipment : Dual trace oscilloscope
 To be measured : CH1 → TP1
 CH2 → TP2 } /DF-23 board
 (≠ E1)
 Mode : ADD
 Trigger : TP5 (V. TRIG)/SG-63A board
 To be adjusted : ● RV2/DF-23 board



4-2-11. H. Deflection Balance Adjustment

Note: Calibrate the oscilloscope
 CH1 and CH2 gain.

To be extended : DF-23 board
 Equipment : Dual trace oscilloscope
 To be measured : CH1 → TP5
 CH2 → TP6 } /DF-23 board
 (≠ E1)
 Mode : ADD
 Trigger : TP4 (H. TRIG)/SG-63A board
 To be adjusted : ● RV5/DF-23 board



4-2-12. Gw Voltage Adjustment

Note: Calibrate the oscilloscope CH1 and CH2 gain.

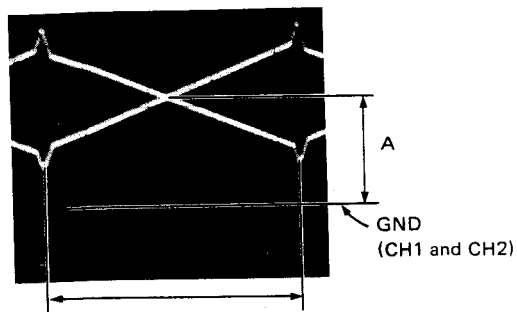
To be extended : DF-23 board

Equipment : Oscilloscope (DC mode)

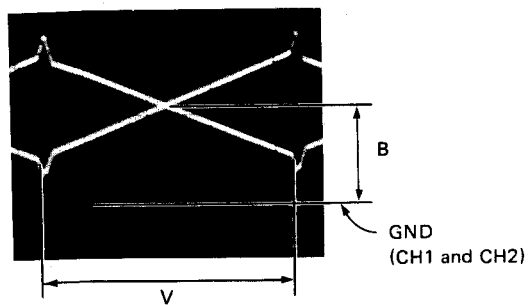
Scope Mode : CHOP

Scope Trigger : TP4 (H. TRIG) } /SG-63A board
TP5 (V. TRIG) }

Test point : CH1 → TP5 } /DF-23 board
CH2 → TP6 }



CH1 → TP1 } /DF-23 board
CH2 → TP2 }



Spec. : $A = B$

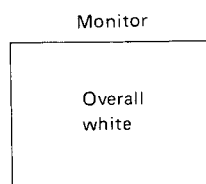
Adj. point : \odot RV1/DF-23 board

4-2-13. G Beam (ABO) Adjustment

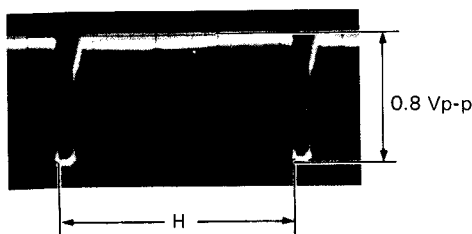
Note: Avoid continuous shooting of bright object in order to protect the tubes, for a long period.

Object : White window chart
 Equipment : Oscilloscope
 To be extended : VA-23 board
 Preparations : \odot RV11 (ABO GAIN) \rightarrow Fully \odot
 \odot RV12 (SLOPE) \rightarrow Fully \odot
 \odot RV15 (POINT) \rightarrow Fully \odot
 \odot RV26 (CLIP) \rightarrow Fully \odot
 \odot RV30 (G O/S LEV) \rightarrow Fully \odot } VA-23 board

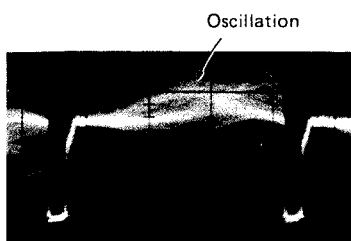
1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.



2. Adjust the lens iris so that the video level of the B9/VA-23 board is 0.4p-p. Next adjust the \odot RV14 (BLK CLIP)/VA-23 board so that the video waveform is on the point of appearing on the TP5/VA-23 board.
3. Open the lens iris gradually and adjust the \odot RV13 (G.BEAM)/VA-23 board so that the video waveform of B9/VA-23 board just starts to clip at 0.8 Vp-p.

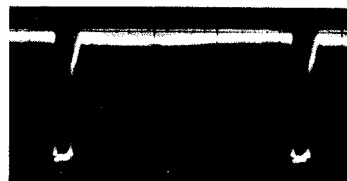


4. Turn the \odot RV11 (ABO GAIN)/VA-23 board so that the waveform of B9 oscillates slightly.

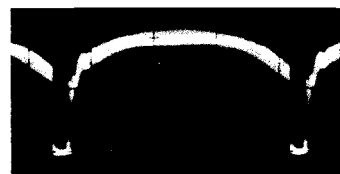


When the waveform does not oscillate even if the RV11 (ABO GAIN) is turned fully, open the lens iris three more stops than F when B9 level is 0.4V, and set the RV11 just before lack of beam. In this case, adjustments of 5 and after are not necessary.

5. Stop oscillating by Adjusting the \odot RV15 (POINT)/VA-23 board.



6. Open the lens iris three more stops than F when B9 level is 0.4V, and adjust the \odot RV12 (SLOPE) so that the video waveform of B9/VA-23 board is not limited by lack of beam and does not oscillate.



7. Adjust the \odot RV26 (CLIP)/VA-23 board so that the waveform is clipped.

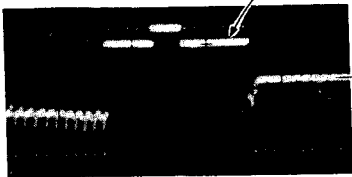


8. Display on the oscilloscope the B17/VA-23 in the vicinity of the V blanking by using VD as external trigger.

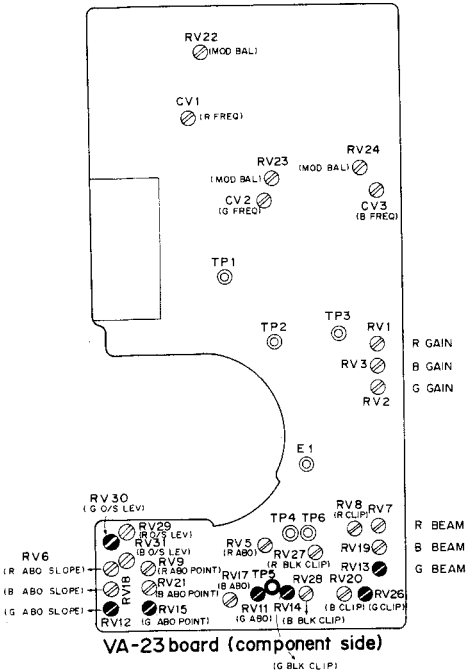
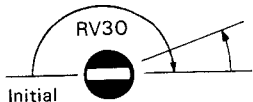


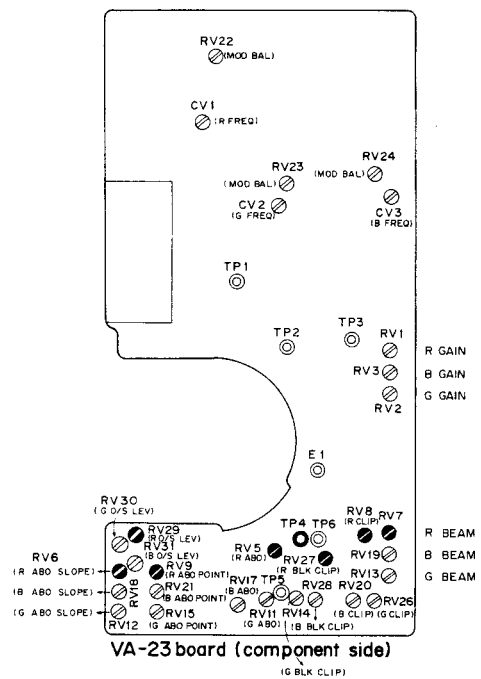
(Lens iris closed)

(If the picture level does not lower even when the O/S pulse level is increased, turn the RV30 fully clockwise.)



When the point where the picture level suddenly drops appears, then return the ● RV30 to a position where drops by 0.5V of the O/S pulse level.





4-2-14. R Beam (ABO) Adjustment

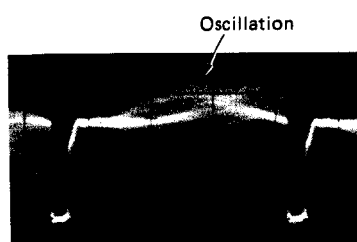
Note: Avoid continuous shooting of bright object in order to protect the tubes, for a long period.

Object : White window chart
 Equipment : Oscilloscope
 To be extended : VA-23 board
 Preparations : \odot RV5 (ABO GAIN) \rightarrow Fully \odot } /VA-23 board
 \odot RV6 (SLOPE) \rightarrow Fully \odot }
 \odot RV9 (POINT) \rightarrow Fully \odot }
 \odot RV8 (CLIP) \rightarrow Fully \odot }
 \odot RV29 (R O/S LEV) \rightarrow Fully \odot }

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the lens iris so that the video level of the B7/VA-23 board is 0.3 Vp-p. Next adjust the \odot RV27 (BLK CLIP)/VA-23 board so that the video waveform is on the point of appearing on the TP4/VA-23 board.
3. Open the lens iris gradually and adjust the \odot RV7 (R.BEAM) /VA-23 board so that the video waveform of B7/VA-23 board just starts to clip at 0.6 Vp-p.



4. Turn the \odot RV5 (ABO GAIN)/VA-23 board so that the waveform of B7 oscillates slightly.

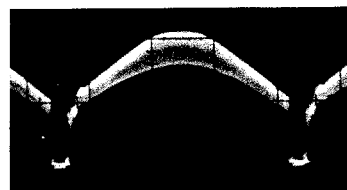


If the waveform does not oscillate even if the RV5 (ABO GAIN) is turned fully, open the lens iris three more stops than F when B9 level is 0.4V, and set the RV5 just before lack of beam. In this case, adjustments of 5 and after are not necessary.

5. Stop oscillating by adjusting the \odot RV9 (POINT)/VA-23 board.



6. Open the lens iris three more stops than F when B9 level is 0.4V, and adjust the \odot RV6 (SLOPE) so that the video waveform of B7/VA-23 board does not lack beam or oscillate.



7. Adjust the \odot RV8 (CLIP)/ VA-23 board so that the waveform is clipped.

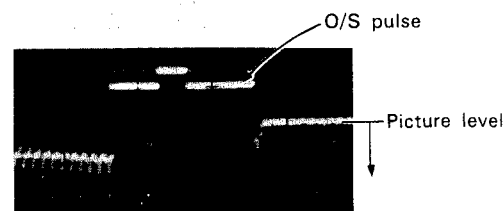


8. Display on the oscilloscope the A17/VA-23 in the vicinity of the V blanking by using VD as external trigger.

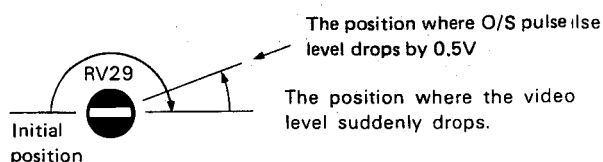


(Lens iris close)

9. There exists a point where the picture level is suddenly dropped by increasing the O/S pulse level with the \odot RV29/VA-23 board while keeping the lens iris open with the object matter being entirely white. (If the picture level does not lower even when the O/S pulse level is increased, turn the RV29 fully clockwise.)



When the point where the picture level suddenly drops appears, returns the \odot RV29 to the position where the drops by 0.5V the O/S pulse level.



4-2-15. B Beam (ABO) Adjustment

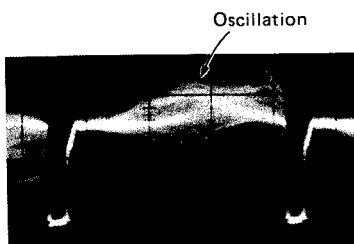
Note: Avoid continuous shooting of bright object in order to protect the tubes, for a long period.

Object : White window chart
 Equipment : Oscilloscope
 To be extended : VA-23 board
 Preparations : \odot RV17 (ABO GAIN) \rightarrow Fully \odot
 \odot RV18 (SLOPE) \rightarrow Fully \odot
 \odot RV21 (POINT) \rightarrow Fully \odot
 \odot RV20 (CLIP) \rightarrow Fully \odot
 \odot RV31 (B O/S LEV) \rightarrow Fully \odot } /VA-23 board

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the lens iris so that the video level of the A11/VA-23 board is 0.3 Vp-p. Next adjust the \odot RV28 (BLK CLIP)/VA-23 board so that the video waveform is on the point of appearing on the TP6/VA-23 board.
3. Open the lens iris gradually and adjust the \odot RV19 [B. BEAM] /VA-23 board so that the video waveform of A11/VA-23 board just starts to clip at 0.6 Vp-p.



4. Turn the \odot RV17 (ABO GAIN)/VA-23 board so that the waveform of A11 oscillates slightly.

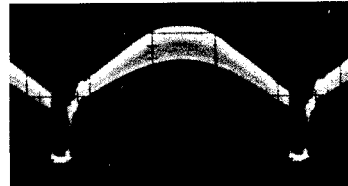


If the waveform does not oscillate even if the RV17 (ABO GAIN) is turned fully, open the lens iris three more stops than F when B9 level is 0.4V, and set the RV17 just before lack of beam. In this case, adjustments of 5 and after are not necessary.

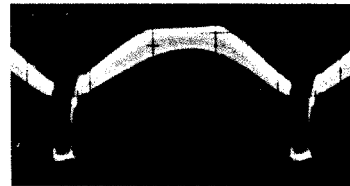
5. Stop oscillating by Adjusting the \odot RV21 (POINT)/VA-23 board.



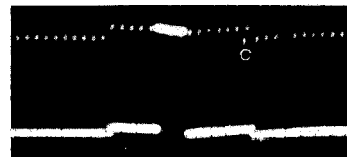
6. Open the lens iris three more stops than F when B9 level is 0.4V, and adjust the \odot RV18 (SLOPE) so that the video waveform of A11/VA-23 board does not lack beam or oscillate.



7. Adjust the \odot RV20 (CLIP)/VA-23 board so that the waveform is clipped.

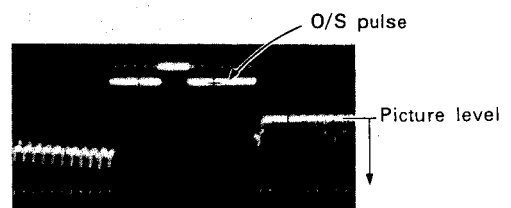


8. Display on the oscilloscope the A18/VA-23 in the vicinity of the V blanking by using VD as external trigger.

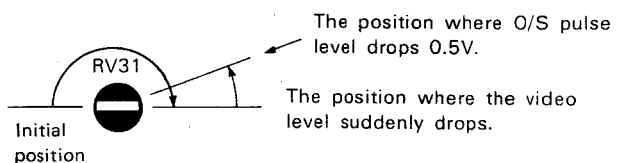


(Lens iris close)

9. There exists a point where the picture level is suddenly dropped by increasing the O/S pulse level with the \odot RV31/VA-23 board while keeping the lens iris open with the object matter being entirely white.
 (If the picture level does not lower even when the O/S pulse level is increased, turns the RV31 fully clockwise.)



When the point where the picture level suddenly drops appears, then return the \odot RV31 to the position where the drops by 0.5V the O/S pulse level.

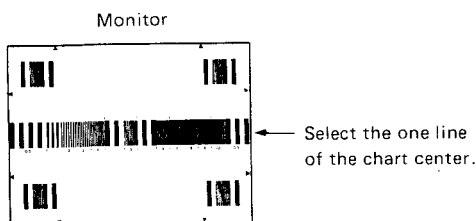


4-2-16. G-CH E Focus Adjustment

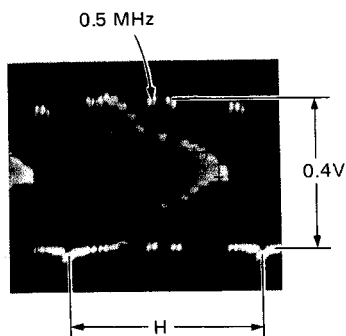
Note: From this adjustment 4-2-24. G-CH Linearity Adjustment, adjustment should be performed repeatedly until it satisfies the specified values.

Object : Multiburst chart
Equipment : Oscilloscope
To be extended : VA-23 board
Trigger : TP5 (V. TRIG)/SG-63A board

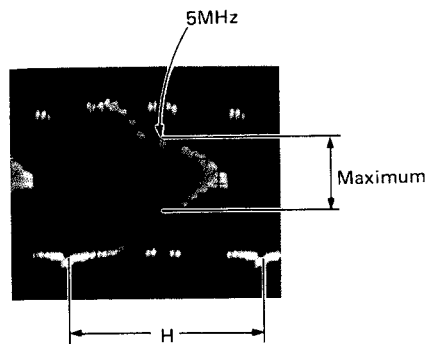
1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.



2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.



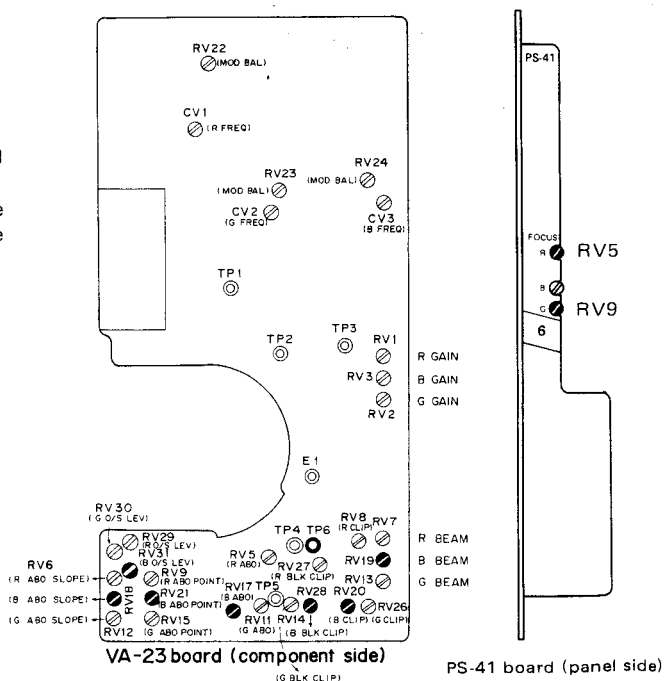
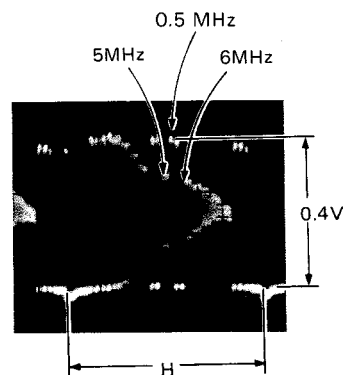
3. Adjust the focus control so that the waveform signal amplitude at 5 MHz is maximized.
4. Adjust the RV9 **G. FOCUS** /PS-41 board so that the waveform signal amplitudes at both 5 MHz and 6 MHz are maximized.



4-2-17. R-CH E Focus Adjustment

Object : Multiburst chart
Equipment : Oscilloscope
To be extended : VA-23 board
Trigger : TP5 (V. TRIG)/SG-63A board

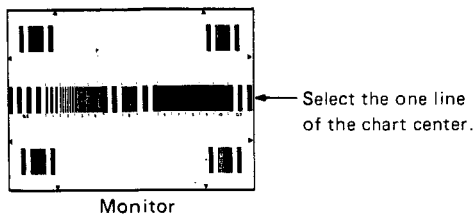
1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Adjust the focus control so that the waveform signal amplitude corresponding to 5 MHz at B7/extension board is maximized.
4. Adjust the RV5 **R. FOCUS** /PS-41 board so that the waveform signal amplitudes corresponding to both 5 MHz and 6 MHz at B7 are maximized.



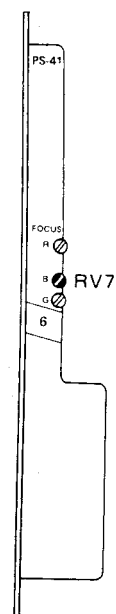
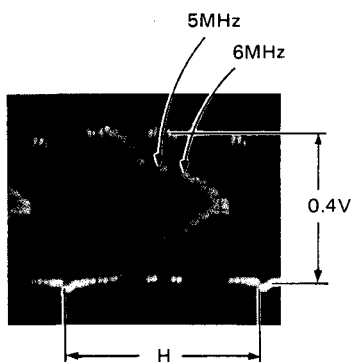
4-2-18. B-CH E Focus Adjustment

Object: Multiburst chart
 Equipment: Oscilloscope
 To be extended: VA-23 board
 Trigger: TP5 (V. TRIG)/SG-63A board

1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.



2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Adjust the focus control so that the waveform signal amplitude corresponding to 5 MHz at A11/extension board is maximized.
4. Adjust the \odot RV7 [B. FOCUS]/PS-41 board so that the waveform signal amplitudes corresponding to both 5 MHz and 6 MHz at A11 are maximized.

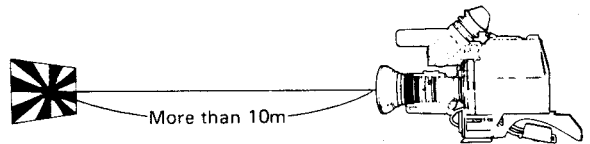


PS-41 board (panel side)

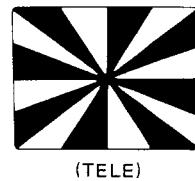
4-2-19. G-CH Back Focus Adjustment

- Notes:**
1. Never turn the back focus adjusting screw shown below except when replacing the camera tube of G channel. Adjust the back focus of lens for back focus adjustment. However, when the camera tube is replaced or the adjustment cannot be made on the lens side, set the lens back focus ring at the marked position so as to make the following adjustment.
 2. From this adjustment to 4-2-25. G-CH Linearity Adjustment, adjustment should be performed repeatedly until it satisfies the specified values.

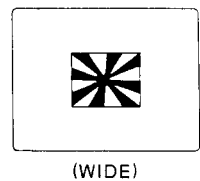
Object: Siemens-star chart
 Preparations: S8 REG/ENC → REG
 S7 G/-G → G
 S6 R/B → OFF } /PR-75 board
 Lens iris: Open



1. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Optically focus the image so as to obtain the maximum resolution.
2. Set the zoom control at WIDE so as to obtain the minimum multiplication factor. Do not optically focus the image at this time. Check whether the image is focused on the monitor while turning the zoom control from TELE to WIDE. If the image is not focused, properly set at back focus as follows:
3. Carefully loosen the setscrew shown below. When the zooming mechanism is set at WIDE, turn the back focus adjusting screw.
4. Tighten the setscrew after repeating Step 1 through Step 3 several times.



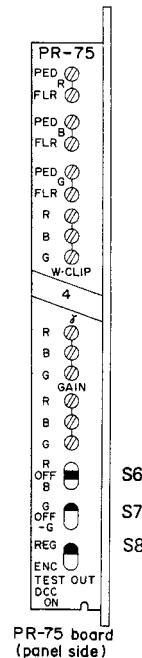
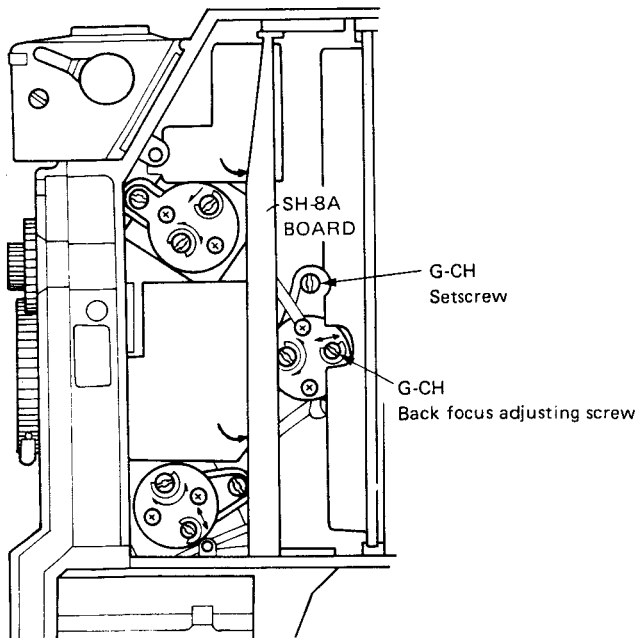
(TELE)



(WIDE)

Monitor screen

Note: When the zoom control is set at WIDE, be careful not to be exposed to strong light such as a fluorescent lamp.



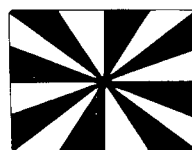
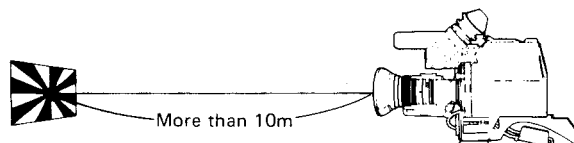
4-2-20. R-CH Back Focus Adjustment

Note: Prior to this adjustment, confirm that the back focus in the green channel is set at a proper position. If not, first of all, make the back focus adjustment in the green channel.

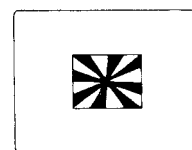
Object: Siemens-star chart
Preparation: S8 REG/ENC /PR-75 board → REG
Lens iris: Open

1. S7 $\frac{G}{-G}$ → G } /PR-75 board
S6 $\frac{R}{B}$ → OFF }
2. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Do not touch the focus control after setting its position in this step during this adjustment.
3. S7 $\frac{G}{-G}$ → OFF } /PR-75 board
S6 $\frac{G}{B}$ → R }
4. Set the zoom control at TELE so as to obtain the maximum multiplication factor. If the image is not focused, carefully loosen the setscrew shown below and tighten the setscrew after the back focus adjusting screw is set at the optimum focus position.
5. When the zoom control is set at WIDE from TELE, make sure if the image is focused.

Note: If there is still unacceptable back focus track is error between G channel and R channel, off set lens back focus adjustment a little from lens back focus warker, then repeat adjustment from section 4-2-19 to section 4-2-20.
In some cases this adjustment may give better result.

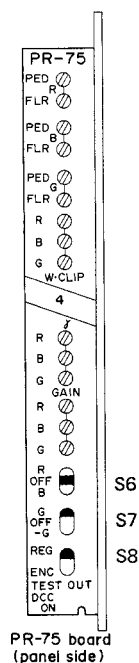
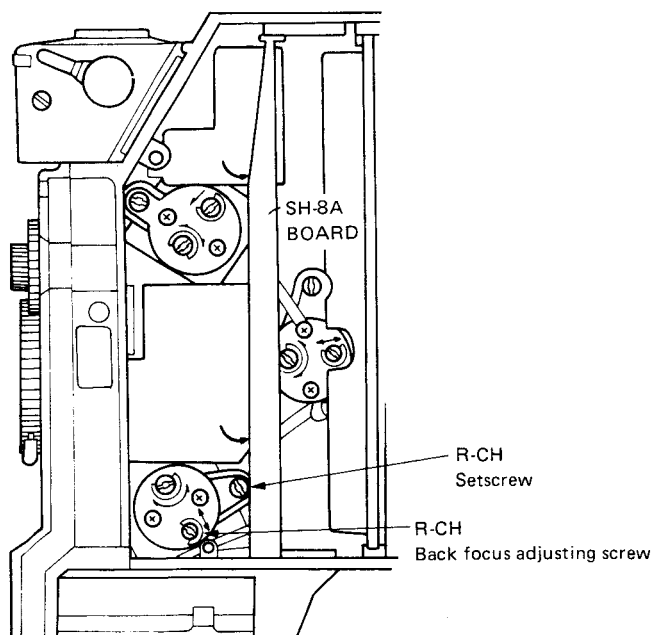


(TELE)



(WIDE)

Monitor screen



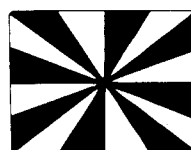
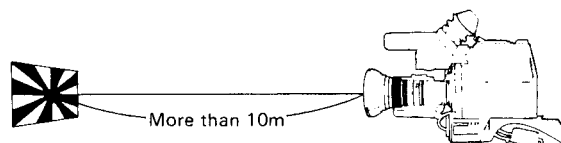
4-2-21. B-CH Back Focus Adjustment

Note: Prior to this adjustment, confirm that the back focus in the green channel is set at a proper position. If not, first of all, make the back focus adjustment in the green channel.

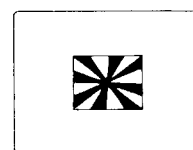
Object: Siemens-Star chart
Preparation: S8 **REG/ENC** /PR-75 board → REG
Lens iris: Open

1. S7 **G/-G** → G } /PR-75 board
S6 **R/B** → OFF }
2. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Do not touch the focus control after setting its position in this step during this adjustment.
3. S7 **G/-G** → OFF } /PR-75 board
S6 **G/B** → B }
4. Set the zoom control at TELE so as to obtain the maximum multiplication factor. If the image is not focused, carefully loosen the setscrew shown below and tighten the setscrew after the back focus adjusting screw is set at the optimum focus position.
5. When the zoom control is set at WIDE from TELE, make sure if the image is focused.

Note: If there is still unacceptable back focus track is error between G channel and B channel, off set lens back focus adjustment a little from lens back focus warker, then repeat adjustment from section 4-2-20 to section 4-2-21.
In some cases this adjustment may give better result.

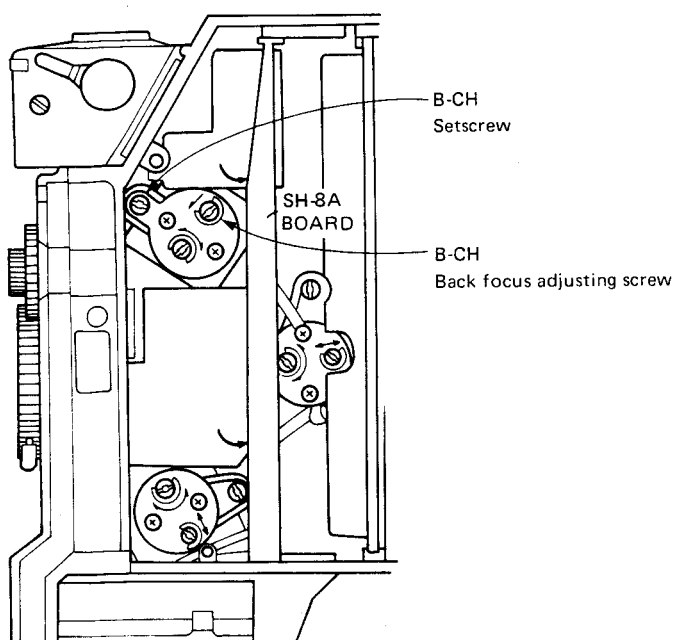


(TELE)



(WIDE)

Monitor screen



4-2-22. G-CH Rotation Adjustment

Note: After this adjustment, check the back focus adjustment in the green channel.

Object : Registration chart

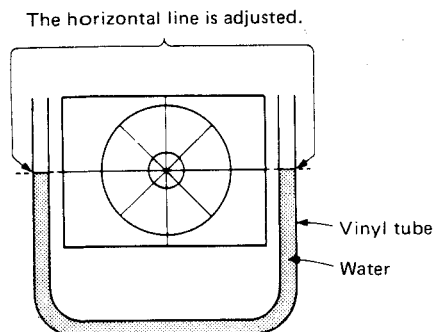
Preparations : S8 REG/ENC → REG
S7 G-G → G
S6 R/B → OFF

} /PR-75 board

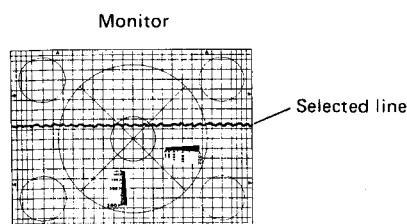
Set the tripod adaptor horizontally by using a level, and then mount the camera.

Set the registration chart at the horizontal position.

The use of a transparent vinyl tube containing water, instead of a level, makes it possible to set the registration chart correctly at the horizontal position.

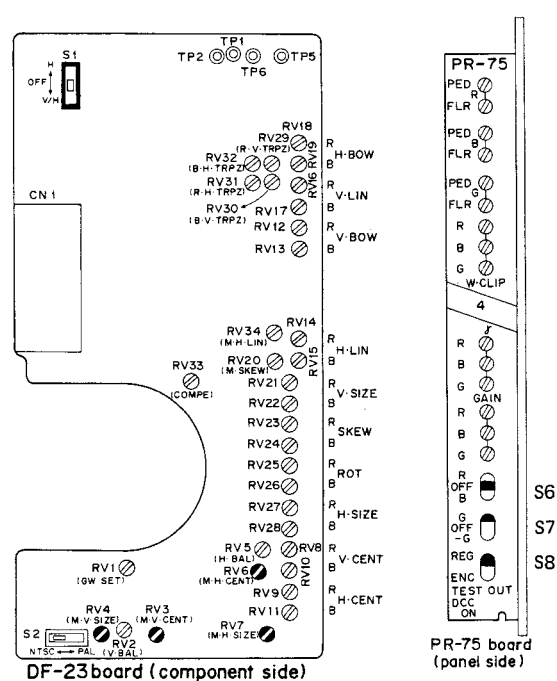
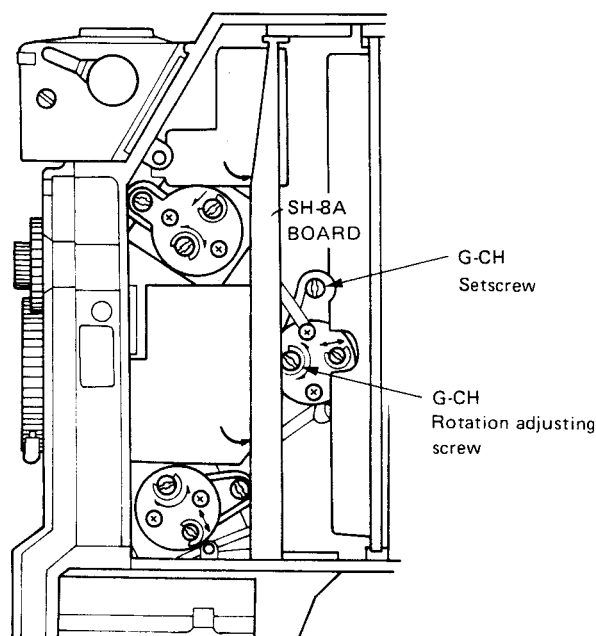


1. Select the lines by using a Waveform monitor and confirm that the horizontal line of the registration chart is in parallel with the selected line on the monitor.



2. If these 2 lines are not in parallel, make the following adjustments.
3. Carefully loosen the setscrew shown above.
If the setscrew is loosened too much, back focus will tend to be inaccurate when rotation adjustment is done. Be careful not to loosen it too much.
(Turning angle: approx. $90^{\circ} \sim 100^{\circ}$)

4. Adjust the rotation adjusting screw so that the selected line on the monitor is in parallel with the horizontal line of the registration chart.
5. Carefully tighten the setscrew.



4-2-23. G-CH Picture Frame Adjustment

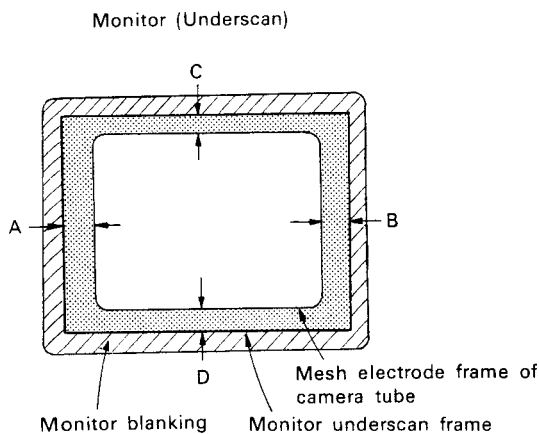
Equipment : Pattern projector
Registration chart

Preparations : Lens iris closed

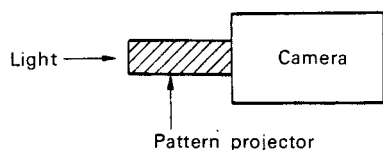
S8 REG/ENC → REG
S7 G/-G → G
S6 R/B → OFF } /PR-75 board

Adjustment :

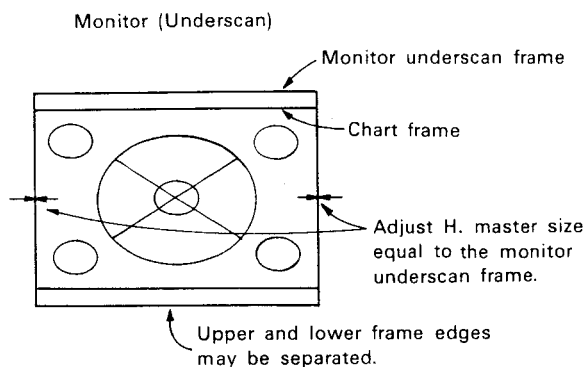
1. S1 OVER SCAN /DF-23 board. → H/V.
2. Set 'A' to be equal to 'B' by adjusting \odot RV6 (H MAST CENT)/DF-23 board.
Set 'C' to be equal to 'D' by adjusting \odot RV3 (V MAST CENT)/DF-23 board.



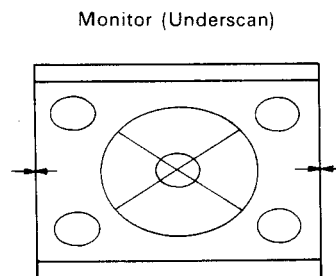
3. Set S1 OVER SCAN /DF-23 board at OFF.
4. Remove the lens from the camera and place the pattern projector in position.



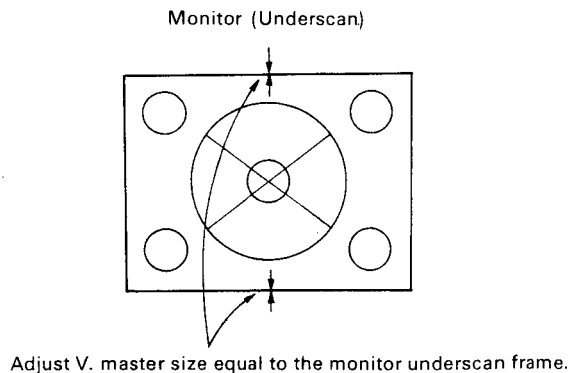
5. Set the chart frame of the pattern projector onto the underscan frame of the monitor by using \odot RV7 (H MAST SIZE). If horizontal centering is not established, move the chart of the jig until horizontal centering is established.



6. Remove the jig from the camera and set the lens in position.
7. Shoot the registration chart and place the left and right edges of the registration chart over the entire underscanned picture frame by using the zoom lens. Correctly face the camera and chart during this adjustment.



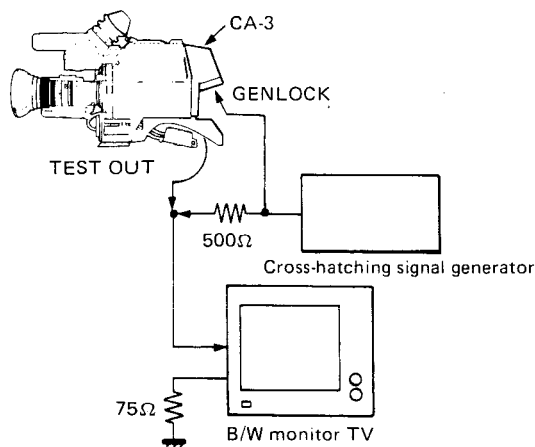
8. Place the upper and lower edges of the chart over the entire underscanned picture frame by using \odot RV4 (V MAST SIZE)/DF-23 board.



4-2-24. G-CH Linearity Adjustment

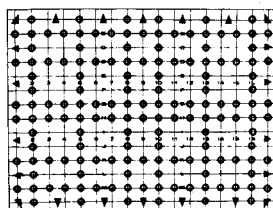
- Object: Ball-pattern chart
 Equipment: Cross-hatching signal generator
 Preparations: S8 $\frac{\text{REG/ENC}}{\text{REG}} \rightarrow \text{REG}$
 S7 $\frac{\text{G/-G}}{\text{G}} \rightarrow \text{G}$
 S6 $\frac{\text{R/B}}{\text{OFF}} \rightarrow \text{OFF}$ } /PR-75 board
- The camera should be located right in front of the pattern box.
 - Use the pattern box in the AUTO mode.

When CA-3 is used
 (Connection)

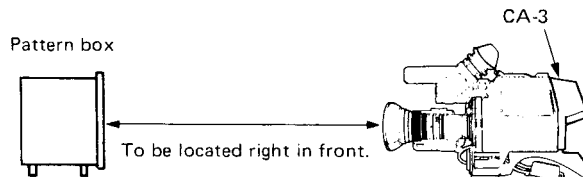


1. Adjust the zoom control so that the ball chart frame touches the underscanned picture frame on the monitor.
2. Center the cross-hatching pattern at the center of the monitor screen by using \odot RV4/SG-63A board.
3. Set the intersection points of orthogonal lines on a cross-hatching pattern at the centers of circles by using \odot RV3, \odot RV4, \odot RV6, \odot RV7, \odot RV20, and \odot RV34/DF-23 board.
4. When the number (13) of horizontal lines in the cross-hatching signal is not the same as the number (14) of marks \odot in the ball chart, stretch the vertical size by using the \odot RV4/DF-23 board. After the linearity adjustment is completed, place the ball chart over the entire frame, again, by using the \odot RV4.

Monitor (Underscanning)

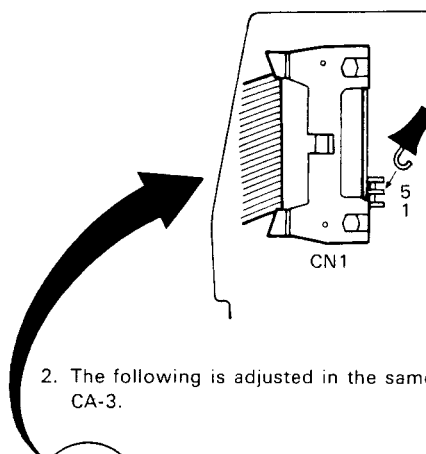


Note: After this adjustment has been completed, return to 4-2-19. G-CH Back Focus Adjustment and adjustment should be repeatedly performed until all the required items satisfy the specified values.

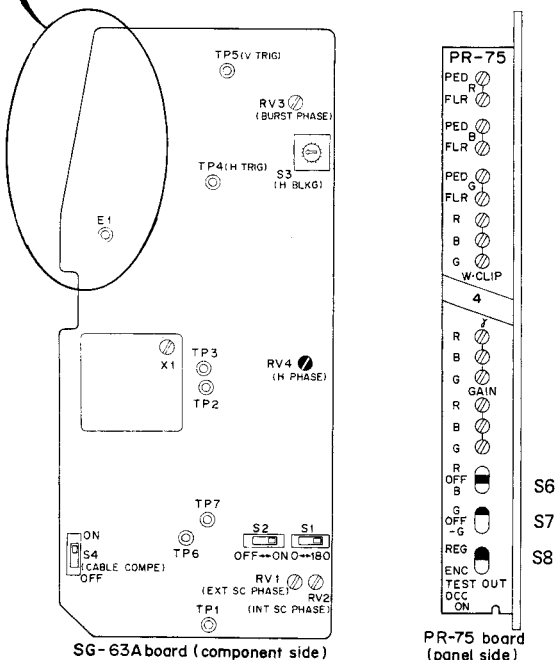


When CA-3 is not used

1. Supply the cross-hatching signal fed to the GENLOCK terminal of CA-3 to CN1 pin 5 on the SG-63A board.



2. The following is adjusted in the same manner as the use of CA-3.



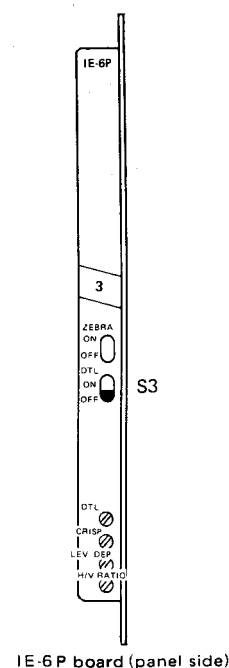
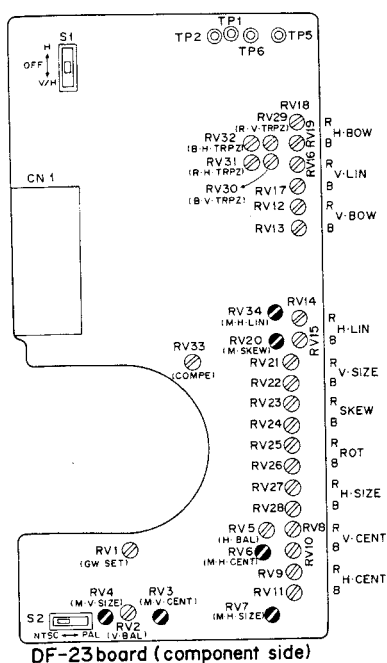
4-2-25. Registration Adjustment

Remarks on the color monitor

Use the B/W monitor. If necessary, use the color monitor after convergence adjustment. Fully turn the chrominance level adjuster on the color monitor counterclockwise, or set the monitor to the B/W mode before starting the adjustment.

Preparations before registration adjustment

1. Set the lens iris at close after the power is turned on, and then warm up the camera for about 30 minutes before adjustment.
2. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.
3. Use the pattern box in the AUTO mode.
4. Filter position → 1
5. S3 **DTL** /IE-6P board → OFF
6. After confirmed the sec. 4-2-72 Iris Level Adjustment, set the lens iris switch at AUTO position.
7. S8 **REG/ENC** /PR-75 board → REG
8. AUTO CENT switch → PRESET

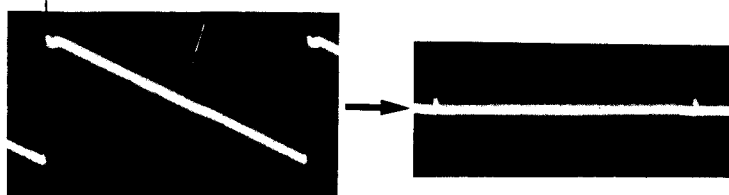
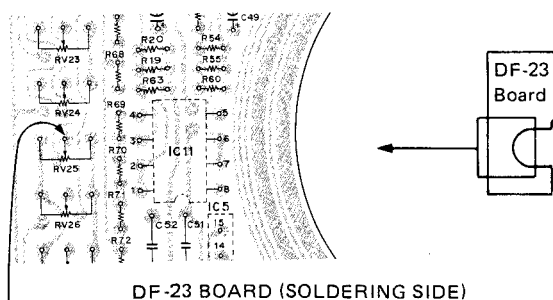


4-2-26. R-CH Rotation Adjustment

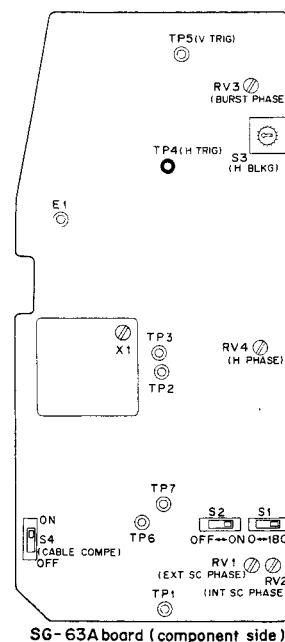
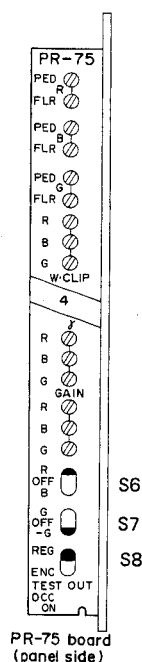
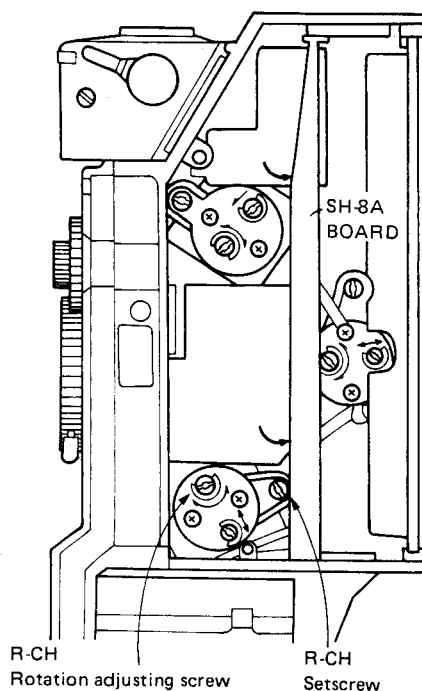
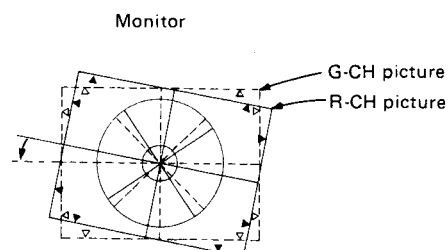
Note: The R-CH Rotation adjustment exerts influence on the 4-2-20. R-CH Back Focus Adjustment, so be sure to check the R-CH back focus adjustment after the Rotation adjustment is completed.

Object : Registration chart
 Measuring equipment: Oscilloscope
 To be extended : DF-23 board
 Trigger : TP4 (H. TRIG)/SG-63A board

1. S7 $\frac{G}{-G} \rightarrow -G$
 S6 $\frac{R}{B} \rightarrow R$ } /PR-75 board
2. Check whether 2 horizontal lines at the center of the R and -G picture are in parallel or overlapped.
 If these 2 lines are not in parallel or overlapped, make the following adjustments.
3. Connect the probe of an oscilloscope to the center of the \odot RV25 $\frac{R}{R.ROT}$ /DF-23 board (refer to the figure below) and adjust the \odot RV25 $\frac{R}{R.ROT}$ so that the corrected waveform disappears on the monitor.



4. Carefully loosen the setscrew shown above.
 Adjust the rotation adjusting screw so that the horizontal line at the center of the R-CH picture is overlapped or in parallel with the picture in the green channel.
5. Carefully tighten the setscrew.



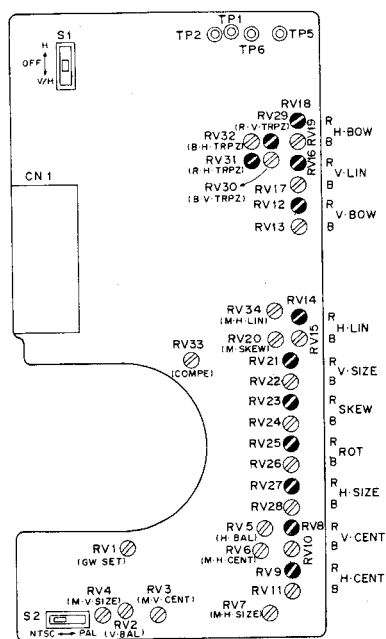
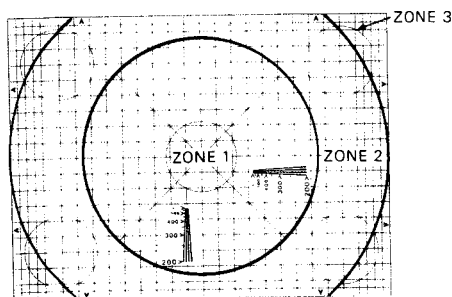
4-2-27. R-CH Registration Adjustment

Object : Registration chart
 Preparation : S3 **DTL** switch/IE-6 board → OFF
 Lens Iris switch → AUTO
 AUTO CENT switch → PRESET
 S8 **REG/ENC** → REG }
 S7 **G/-G** → -G } /PR-75 board
 S6 **R/B** → R }

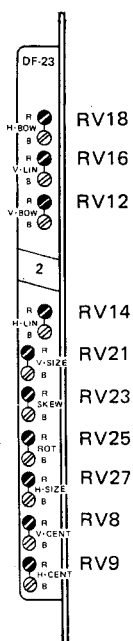
Adjust : To make the picture divergence between G-CH and R-CH to be a minimum, use the volume controls shown in figure below.

Spec : Zone 1 0.1%
 Zone 2 0.15%
 Zone 3 0.3%

(Width of the line in the chart = 0.2%)

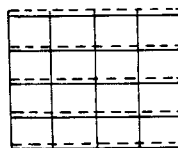


DF-23 board (component side)

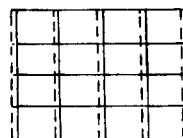


DF-23 board (panel side)

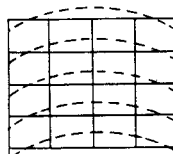
RV8 (V. CENT)



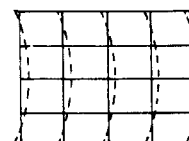
RV9 (H. CENT)



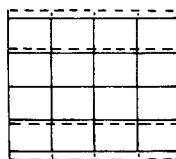
RV12 (V. BOW)



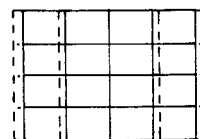
RV18 (H. BOW)



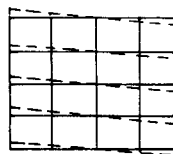
RV21 (V. SIZE)



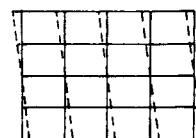
RV27 (H. SIZE)



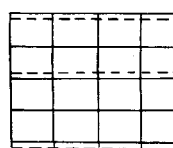
RV25 (ROT)



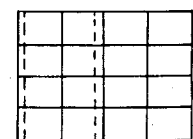
RV23 (SKEW)



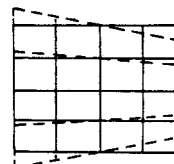
RV16 (V. LIN)



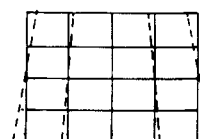
RV14 (H. LIN)



RV29 (V. TRPZ)



RV31 (H. TRPZ)

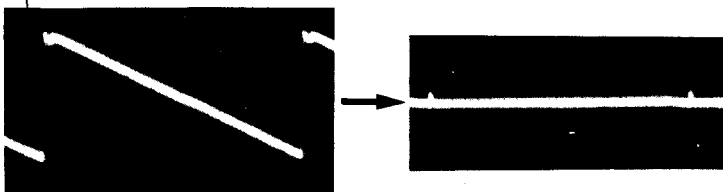
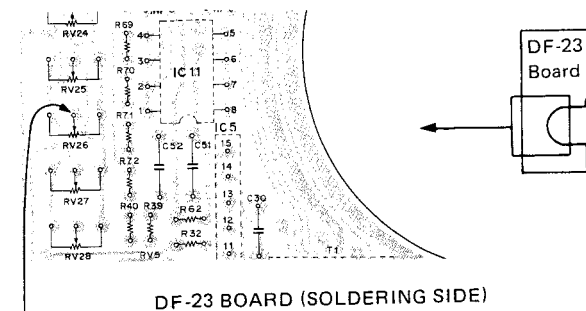


4-2-28. B-CH Rotation Adjustment

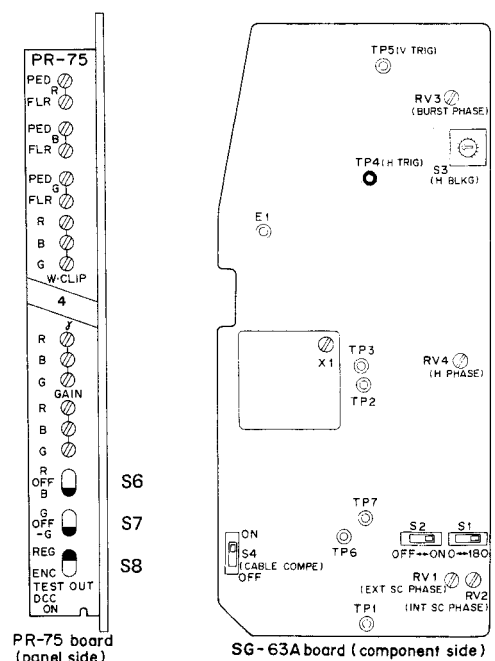
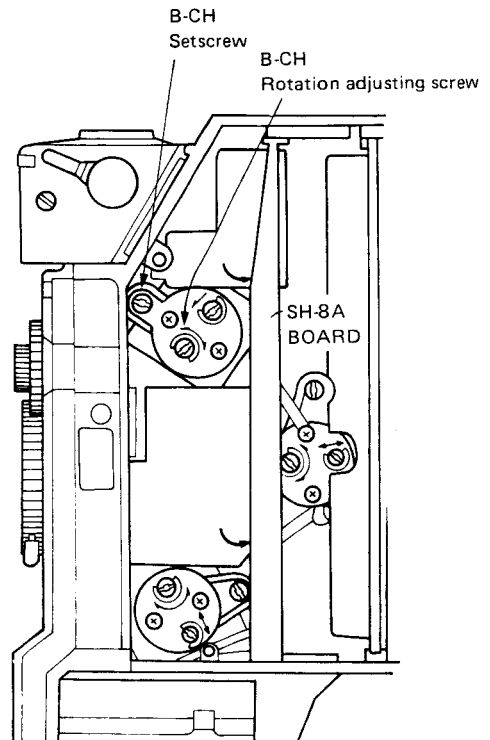
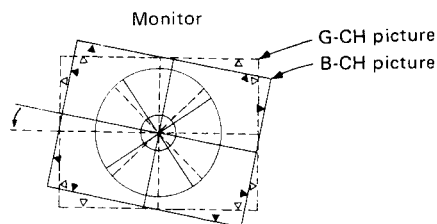
Note: The B-CH Rotation adjustment exerts influence on the 4-2-21. B-CH Back Focus Adjustment, so be sure to check the B-CH back focus adjustment after the Rotation adjustment is completed.

Object: Registration chart
Equipment: Oscilloscope
To be extended: DF-23 board
Trigger: TP4 (H. TRIG)/SG-63A board

1. S7 $\frac{G}{-G} \rightarrow -G$
S6 $\frac{R}{B} \rightarrow B$ } /PR-75 board
2. Check whether 2 horizontal lines at the center of the B and -G picture are in parallel or overlapped.
If these 2 lines are not in parallel or overlapped, make the following adjustments.
3. Connect the probe of an oscilloscope to the center of the $\text{RV26 } \frac{B}{-G}$ /DF-23 board (refer to the figure below) and adjust the $\text{RV26 } \frac{B}{-G}$ so that the corrected waveform disappears on the monitor.



4. Carefully loosen the setscrew shown above.
Adjust the rotation adjusting screw so that the horizontal line at the center of the B-CH picture is overlapped or in parallel with the picture in the green channel.
5. Carefully tighten the setscrew.



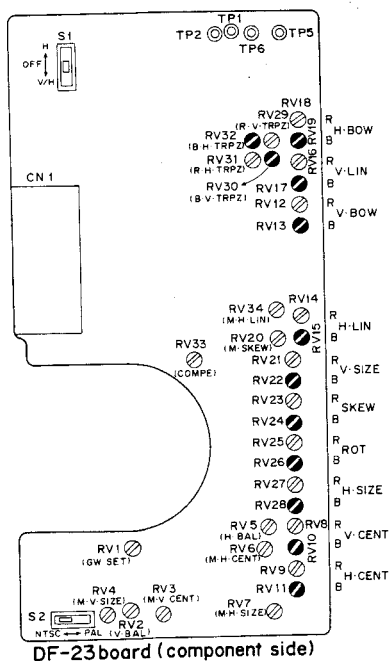
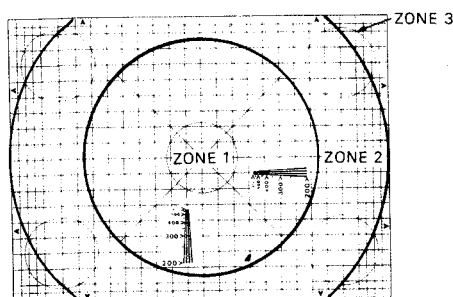
4-2-29. B-CH Registration Adjustment

Object : Registration chert
 Preparation : S3 **DTL** switch/IE-6 board → OFF
 Lens Iris switch → AUTO
 AUTO CENT switch → PRESET
 S8 **REG/ENC** → REG
 S7 **G/-G** → -G } /PR-75 board
 S6 **R/B** → B }

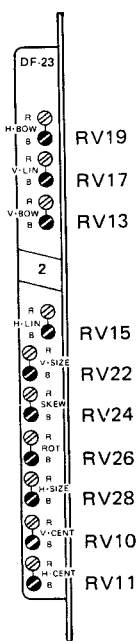
Adjust : To make the picture divergence between G-CH and B-CH to be a minimum, use the volume controls shown in figure below.

Spec : Zone 1 0.1%
 Zone 2 0.15%
 Zone 3 0.3%

(Width of the line in the chart = 0.2%)

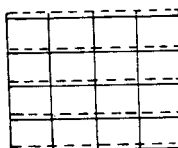


DF-23 board (component side)

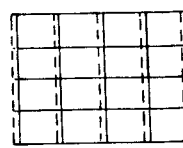


DF-23 board (panel side)

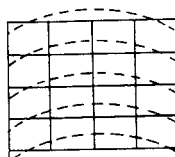
RV10 (V. CENT)



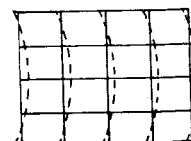
RV11 (H. CENT)



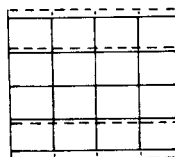
RV13 (V. BOW)



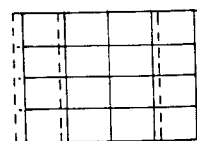
RV19 (H. BOW)



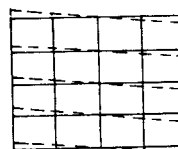
RV22 (V. SIZE)



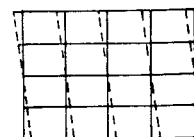
RV28 (H. SIZE)



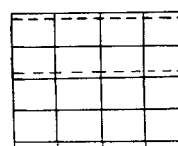
RV26 (ROT)



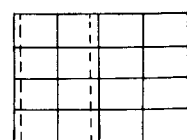
RV24 (SKEW)



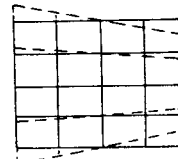
RV17 (V. LIN)



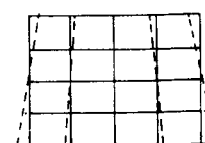
RV15 (H. LIN)



RV30 (V. TRPZ)



RV32 (H. TRPZ)



4-3. VIDEO SIGNAL ADJUSTMENT

4-3-1. Bias Light Adjustment

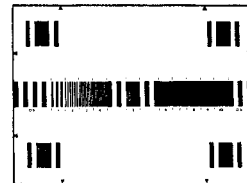
Lens : Close
 Measuring equipment : Oscilloscope
 To be extended : VA-23 board
 Preparations : S2 **BIAS LIGHT**/SH-8A board → ON
 S1 **TEST**/SH-8A board → OFF
 To be measured : B9 (GND)/Extension board
 Trigger : TP4 (H. TRIG)/SG-63A board
 To be adjusted : RV31/SH-8A board
 Specification : 10 ± 2 mV



4-3-2. GREEN PA Frequency Response at high Frequencies Adjustment

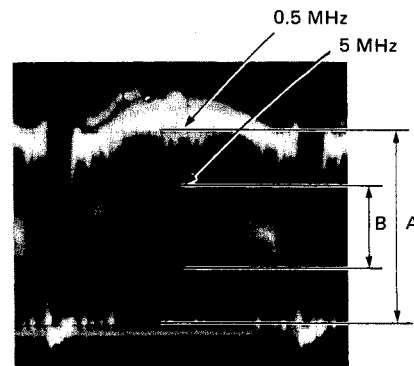
Object : Multiburst chart
 Measuring equipment : Oscilloscope
 Preparation : Remove the shielding case on the PA-37 board
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.

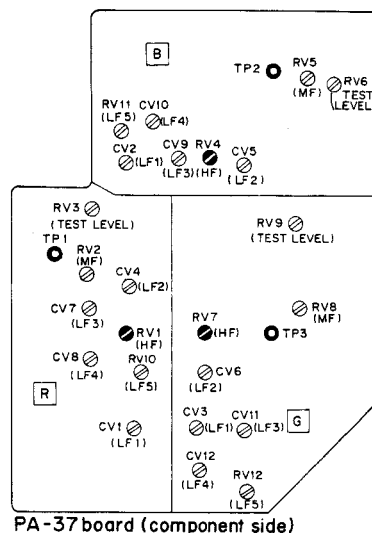
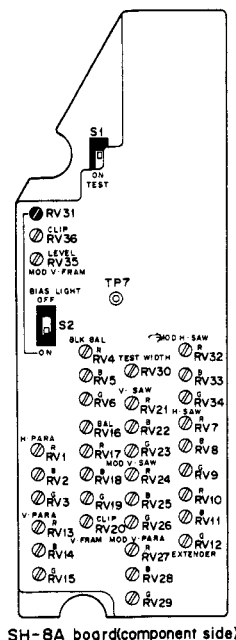


Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to the 0.5 MHz at TP3/PA-37 board is 0.4 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Repeat Step 2.
5. Adjust the RV7 **HF**/PA-37 board so that the amplitude level at 5 MHz is 0.16 Vp-p.



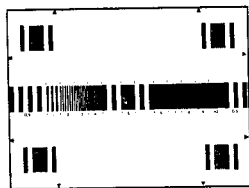
A = 0.4 Vp-p (100%)
 B = 0.16 Vp-p (40%)



4-3-3. RED PA Frequency Response at high Frequencies Adjustment

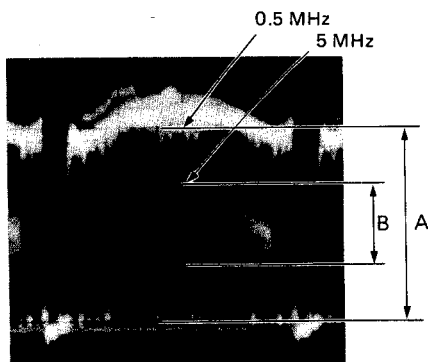
Object : Multiburst chart
 Measuring equipment : Oscilloscope
 Preparation : Remove the shielding case on the PA-37 board.
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.



Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to the 0.5 MHz at TP1/PA-37 board is 0.2 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Repeat Step 2.
5. Adjust the \odot RV1 [HF]/PA-37 board so that the amplitude level at 5 MHz is 0.06 Vp-p.

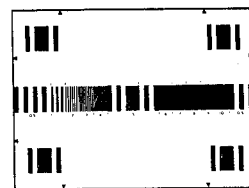


$A = 0.2 \text{ Vp-p (100\%)}$
 $B = 0.06 \text{ Vp-p (30\%)}$

4-3-4. BLUE PA Frequency Response at high Frequencies Adjustment

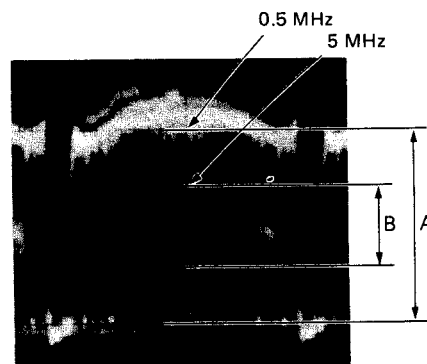
Object : Multiburst chart
 Measuring equipment : Oscilloscope
 Preparation : Remove the shielding case on the PA-37 board.
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.



Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to the 0.5 MHz at TP2/PA-37 board is 0.2 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Repeat Step 2.
5. Adjust the \odot RV4 [HF]/PA-37 board so that the amplitude level at 5 MHz is 0.08 Vp-p.



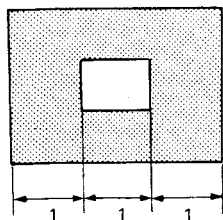
$A = 0.2 \text{ Vp-p (100\%)}$
 $B = 0.08 \text{ Vp-p (40\%)}$

4-3-5. GREEN PA Frequency Response at Low and Medium Frequencies Adjustment

Object : White window chart
 Equipment : Oscilloscope
 Preparations : S8 REC/ENC → REG
 S7 G/-G → G
 S6 R/B → OFF } /PR-75 board

1. Shoot the white window chart as shown below.

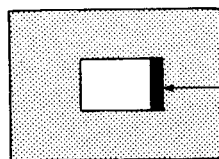
Monitor (Underscanning)



2. Adjust the iris control so that the video level at the TP3/PA-37 board is 0.4 Vp-p.
3. Adj. point:
 ● CV3 (LF1)
 ● CV6 (LF2)
 ● CV11 (LF3)
 ● CV12 (LF4)
 ● RV12 (LF5)
 ● RV8 (MF)
 } /PA-37 board

Adjust: White or black streaking goes not appear on the monitor.

Monitor



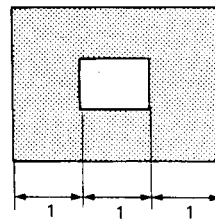
White or black streaking disappearing.

4-3-6. RED PA Frequency Response at Low and Medium Frequencies Adjustment

Object : White window chart
 Equipment : Oscilloscope
 Preparations : S8 REC/ENC → REG
 S7 G/-G → OFF
 S6 R/B → R } /PR-75 board

1. Shoot the white window chart as shown below.

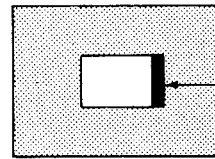
Monitor (Underscanning)



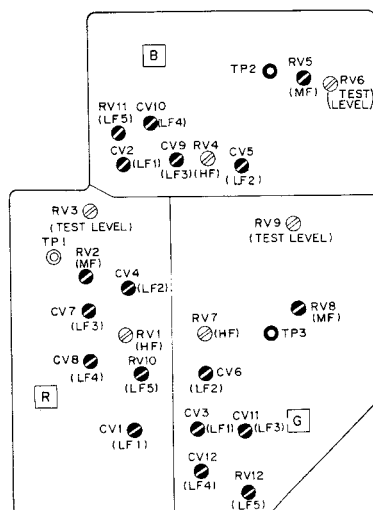
2. Adjust the iris control so that the video level at the TP3/PA-37 board is 0.4 Vp-p.
3. Adj. point:
 ● CV1 (LF1)
 ● CV4 (LF2)
 ● CV7 (LF3)
 ● CV8 (LF4)
 ● RV10 (LF5)
 ● RV2 (MF)
 } /PA-37 board

Adjust: White or black streaking goes not appear on the monitor.

Monitor



White or black streaking disappearing.



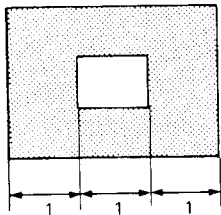
PA-37 board (component side)

4-3-7. BLUE PA Frequency Response at Low and Medium Frequencies Adjustment

Object : White window chart
 Equipment : Oscilloscope
 Preparation : S8 **REG/ENC** → REG
 S7 **G/-G** → OFF
 S6 **R/B** → B } PR-75 board

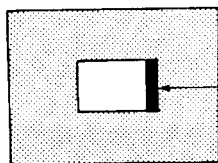
1. Shoot the white window chart as shown below.

Monitor (Underscanning)



2. Adjust the iris control so that the video level the TP3/PA-37 board is 0.4 Vp-p.
3. Adj. point:
 - CV2 (LF1)
 - CV5 (LF2)
 - CV9 (LF3)
 - CV10 (LF4)
 - RV11 (LF5)
 - RV5 (MF)
 } /PA-37 board

Adjust: White and black streaking goes not appear on the monitor.



Monitor

White or black streaking disappearing.

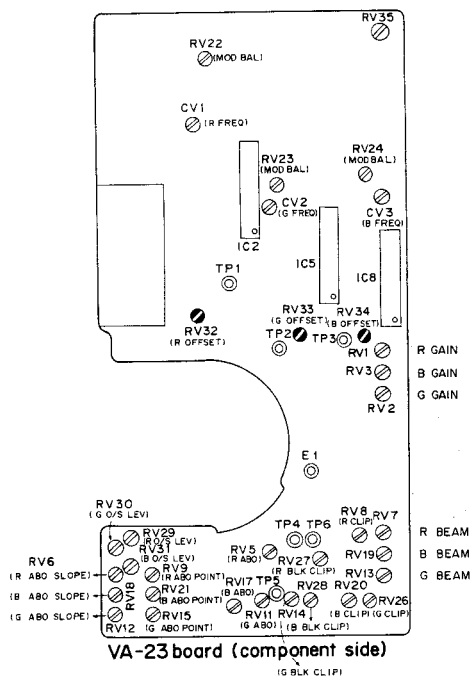
BVP-30(UC) : Serial No. 20171 and higher
 BVP-30AP(EK): Serial NO. 30091 and higher

DC-OFF SET Adjustment

Lens : Close
 Equipment : Oscilloscope (DC mode)
 To be extended : VA-23 Board
 Trigger : TP4 (H. TRIG)/SG-63A Board

1. Adjust the ● RV33 **G OFF SET** /VA-23 board so that the DC level of IC5 pin 1/VA-23 board does not change when select the GAIN SW to 0 dB and 18 dB.
2. Adjust the ● RV32 **R OFF SET** /VA-23 board so that the DC level of IC2 pin 1/VA-23 board does not change when select the GAIN SW to 0 dB and 18 dB.
3. Adjust the ● RV34 **B OFF SET** /VA-23 board so that the DC level of IC8 pin 1/VA-23 board does not change when select the GAIN SW to 0 dB and 18 dB.

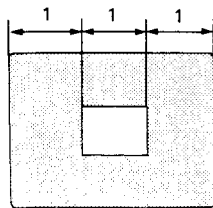
Note: After this adjustment is completed, rest the GAIN Switch to 0 dB.



4-3-8. VA Gain Adjustment

- Note:**
1. Repeatedly adjust the 4-3-8. VA gain adjustment at the 4-3-11. Dynamic range adjustment to obtain the specification.
 2. For the VA gain adjustment, the reflection type chart is highly recommended, and make sure that the white area has 3200°K of color temperature. If the pattern box is used for this adjustment, a well-maintained pattern box should be used.

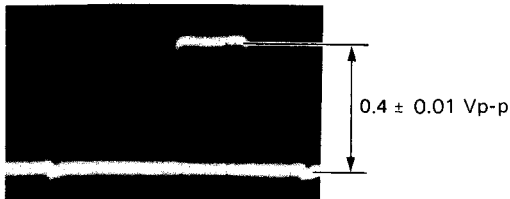
Object : White window chart (3200°K)



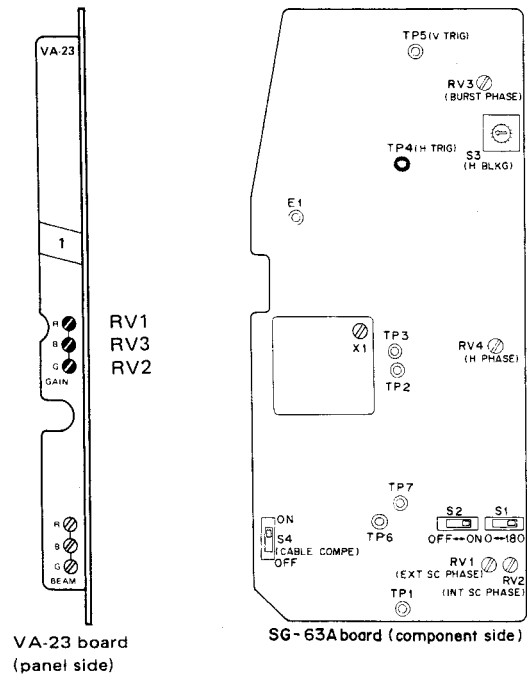
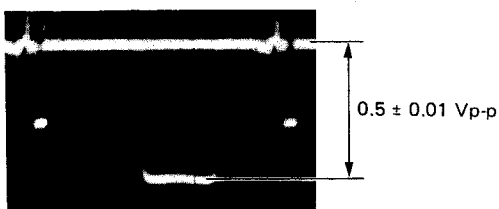
Monitor

Measuring equipment : Oscilloscope
 To be extended : VA-23 board
 Preparation : Remove the shielding case on the PA-37 board
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the iris control so that the video level at TP3/PA-37 board is 0.4 ± 0.01 Vp-p.



2. ⚙ RV35/VA-23 board → mechanical center.
3. Adjust the ⚙ RV2 [G. GAIN]/VA-23 board so that the video level at B5/extension board is 0.5 ± 0.01 Vp-p.
4. Adjust the ⚙ RV1 [R. GAIN]/VA-23 board so that the video level at B3/extension board is 0.5 ± 0.01 Vp-p.
5. Adjust the ⚙ RV3 [B. GAIN]/VA-23 board so that the video level at B4/extension board is 0.5 ± 0.01 Vp-p.



4-3-9. AGC Pulse Level Adjustment

1. Adjust the ⚙ RV-36 BF GAIN VA-23 board so that the BF level at B5/extension board is 0.5 ± 0.01 Vp-p.

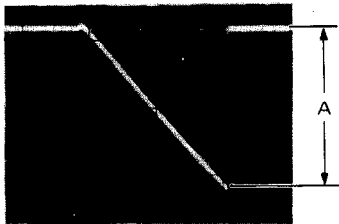


4-3-10. Test Signal Waveform Adjustment

Note: Be sure to carry out 4-3-8. VA Gain Adjustment before this adjustment.

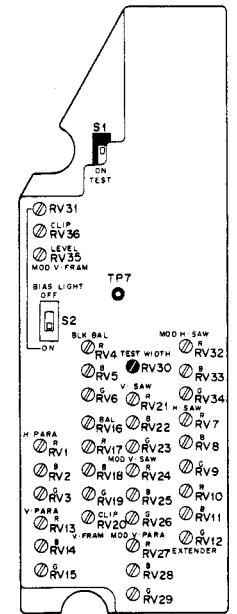
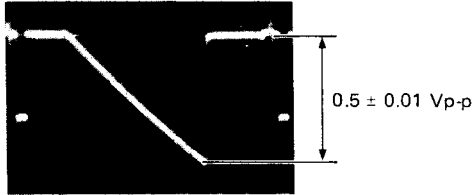
1) Test saw width adjustment

Measuring equipment : Oscilloscope
Preparation : S1 [TEST]/SH-8A board → ON
To be measured : TP7/SH-8A board
To be adjusted : RV30/SH-8A board
Trigger : TP4 (H. TRIG)/SG-63A board
Specification : $A = 1.5 \pm 0.1$ Vp-p

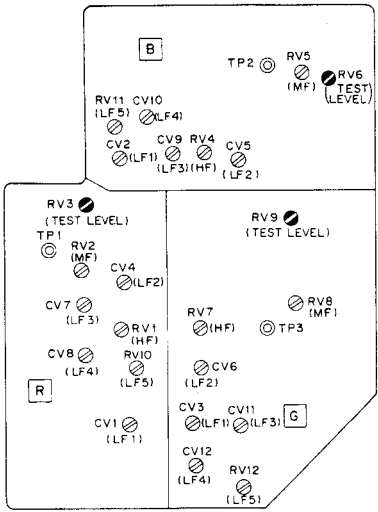


2) Test saw level adjustment

Measuring equipment : Oscilloscope
To be extended : VA-23 board
Preparation : S1 [TEST]/SH-8A board → ON
To be measured : A5 (G)
A3 (R) } /extension board
A4 (B) }
Trigger : TP4 (H. TRIG)/SG-63A board
To be adjusted : RV9 (G)
RV3 (R) } /PA-37 board
RV6 (B) }
Specification : 0.5 ± 0.01 Vp-p



SH-8A board(component side)




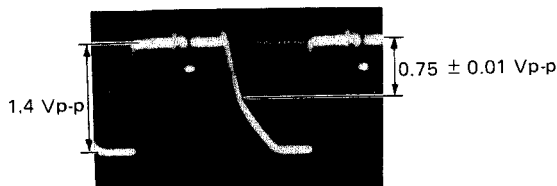
PA-37 board (component side)

4-3-11. Dynamic Range Adjustment

Note: Be sure to carry out 4-3-10, TEST Signal waveform Adjustment before this adjustment.

Measuring equipment : Oscilloscope
To be extended : VA-23 board
Preparations : S1 **TEST**/SH-8A board → ON
Trigger : TP4 (H. TRIG)/SG-63A board

1. GAIN SWITCH \rightarrow 18 dB
2. Adjust the  RV-35/VA-23 board so that the knee point at test signal waveform is 0.75 ± 0.01 Vp-p. Be sure that the peak level on the test waveform signal is 1.4 Vp-p.



3. Be sure that the peak level of the test signal waveform at the B3/extension board is 1.4 Vp-p.
4. Be sure that the peak level of the test signal waveform at the B4/extension board is 1.4 Vp-p.

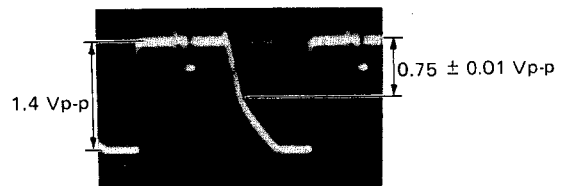
Note: This adjustment, 4-3-8. VA Gain adjustment and 4-3-9. TEST Signal Waveform Adjustment affect each other, so repeat adjustments until their specifications are satisfied.

4-3-12. IE. Clip Level Adjustment

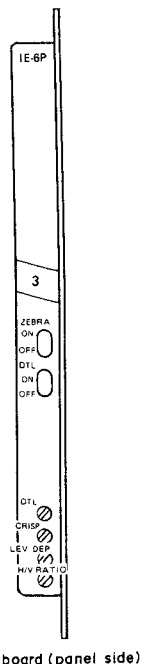
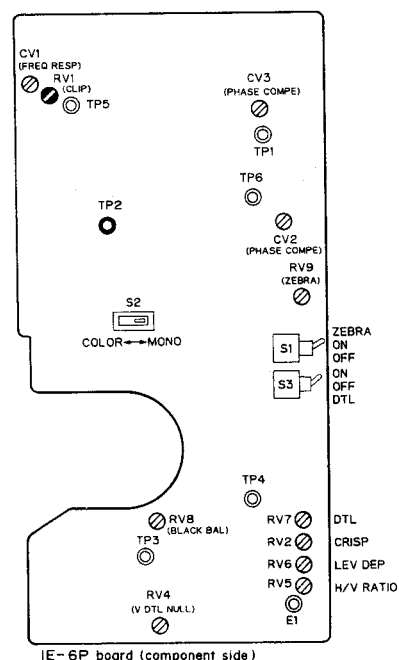
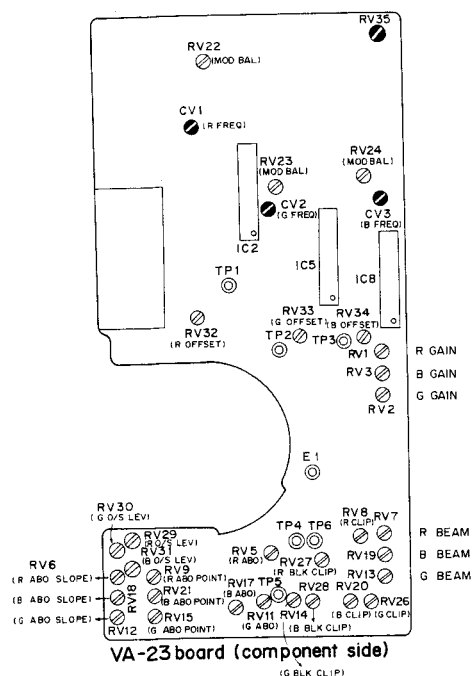
Note: Be sure to carry out 4-3-11, Dynamic Range Adjustment before this adjustment.

Measuring equipment : Oscilloscope
To be extended : IE-6P board
Preparations : S1 **TEST**/SH-8A board → ON
Trigger : TP4 (H. TRIG)/SG-63A board

1. GAIN SWITCH \rightarrow 18 dB
2. Adjust the \odot RV1/IE-6P board so that the peak level on test signal waveform at TP2/IE-6P is 1.4 ± 0.01 Vp-p.



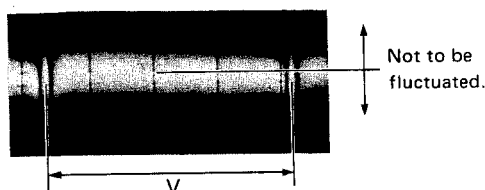
Note: After this adjustments is completed, set GAIN switch at 0 dB and S1 **TEST**/SH-8A board at OFF.



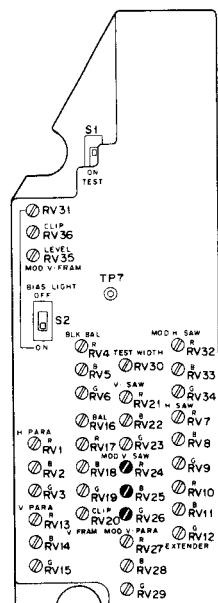
4-3-13. Modulator Balance Adjustment

Lens : Close
 Measuring equipment : Oscilloscope
 To be extended : VA-23 board
 Trigger : TP5 (V. TRIG)/SG-63A board

1. Adjust the RV23/VA-23 board so that the video level at B5/extension board might not change when the RV26 G.MOD V.SAW/SH-8A board is turned clockwise or counterclockwise.
2. Adjust the RV22/VA-23 board so that the video level at B3/extension board might not change when the RV24 R.MOD V.SAW/SH-8A board is turned clockwise or counterclockwise.
3. Adjust the RV24/VA-23 board so that the video level at B4/extension board might not change when the RV25 B.MOD V.SAW/SH-8A board is turned clockwise or counterclockwise.



Note: After this adjustment is completed, be sure to carry out 4-3-22. White Shading Adjustment.

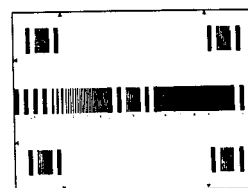


SH-8A board(component side)

4-3-14. VA Frequency Response Adjustment

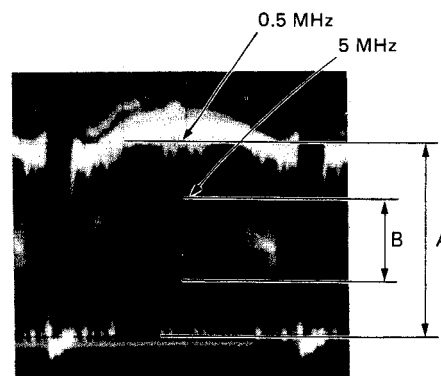
Object : Multiburst chart
 Measuring equipment : Oscilloscope
 To be extended : VA-23 board
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.



Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Adjust the CV2/VA-23 board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at B5 (output)/extension board is the same as that at B9 (input)/extension board.
5. Adjust the CV1/VA-23 board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at B3 (output)/extension board is the same as that at B7 (input)/extension board.
6. Adjust the CV3/VA-23 board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at B4 (output)/extension board is the same as that at A11 (input)/extension board.



$$\left(\frac{B}{A}\right)_{\text{output}} = \left(\frac{B}{A}\right)_{\text{input}}$$

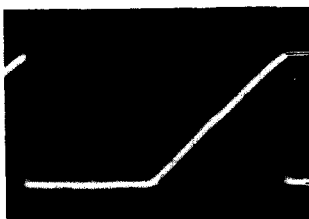
4-3-15. Gamma Balance Adjustment

Note: Be sure to carry out 4-3-10, TEST Signal Waveform Adjustment before this adjustment.

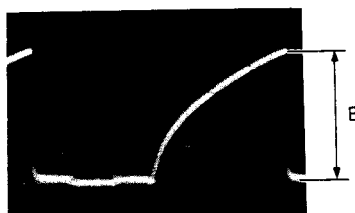
Measuring equipment : Oscilloscope
 To be extended : PR-75 board
 Preparations : S1 **TEST**/SH-8A board → ON
 S1 **WHT CLIP**/PR-75 board → OFF
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the RV11/PR-75 board so that the white peak level of the test signal waveform at B9/extension board does not change while setting S4 **G.Y**/PR-75 board at ON or OFF.
2. Adjust the RV1/PR-75 board so that the white peak level of the test signal waveform at B8/extension board does not change while setting S3 **R.Y**/PR-75 board at ON or OFF.
3. Adjust the RV21/PR-75 board so that the white peak level of the test signal waveform at B11/extension board does not change while setting S5 **B.Y**/PR-75 board at ON or OFF.

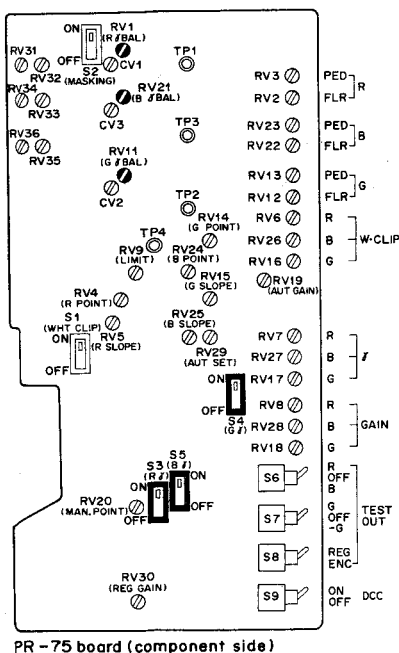
γ · SW : OFF



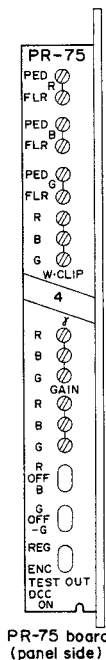
γ · SW : ON



A = B



PR-75 board (component side)

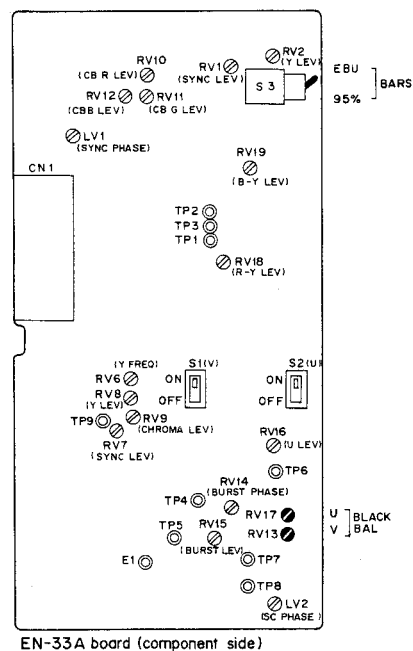


PR-75 board (panel side)

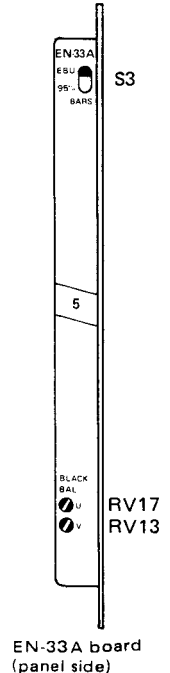
4-3-16. Carrier Balance Adjustment

Measuring equipment : Vectorscope (MAX GAIN)
 To be extended : EN-33A board
 Preparation : OUTPUT switch → BARS
 S3 **BARS**/EN-33A board → EBU

1. Center the black beam spot on the vectorscope using both RV13 **V** and RV17 **U**/EN-33A board.



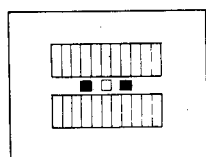
EN-33A board (component side)



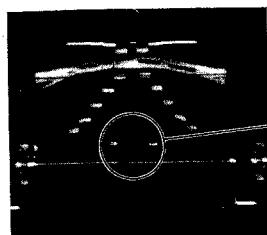
EN-33A board (panel side)

4-3-17. Flare Adjustment

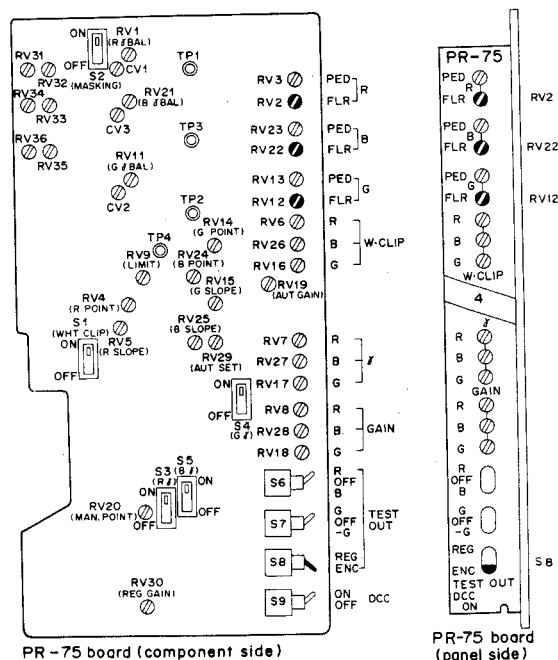
Object : Grayscale chart
 Measuring equipment : Waveform monitor
 To be extended : PR-75 board
 Preparations : S8 **REG/ENC** → ENC
 ● RV22 **B.FLR** } /PR-75
 → Fully counterclockwise } board
 OUTPUT switch → CAM
 S1 **TEST**/SH-8A board → OFF As
 shown below, stick non-reflex and non-
 photoconductive cloth (e.g. velvet etc.)
 on the grayscale chart as a reference of
 the black level.



1. Adjust the zoom control so that the grayscale chart frame touches the undescanned picture frame on the monitor.
2. Open the iris control by 1 position from the position which the video level at the TEST OUT terminal is st at 700 mV.
3. Adjust the ● RV2 **R.FLR** and ● RV12 **G.FLR**/PR-75 board so that the waveform amplitude of the black level is minimized.



Make the amplitude level minimum.

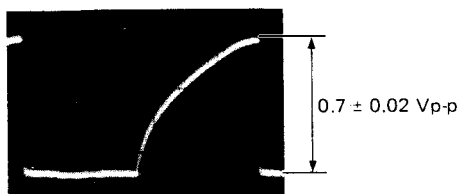


4-3-18. PR Gain Adjustment

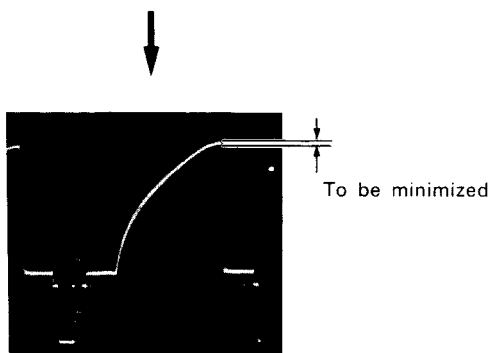
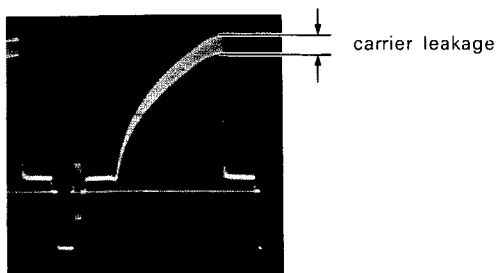
Note: Be sure to carry out 4-3-15. Gamma Balance Adjustment before this adjustment.

Measuring equipment : Oscilloscope, Waveform monitor
 To be extended : PR-75 board
 Preparations : S1 **WHT CLIP** → OFF
 S3 **R_y** → ON
 S4 **G_y** → ON
 S5 **B_y** → ON
 S1 **TEST**/SH-8A board → ON
 Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the RV18 **G. GAIN**/PR-75 board so that the video level at B9/extension board is 0.7 ± 0.02 Vp-p.



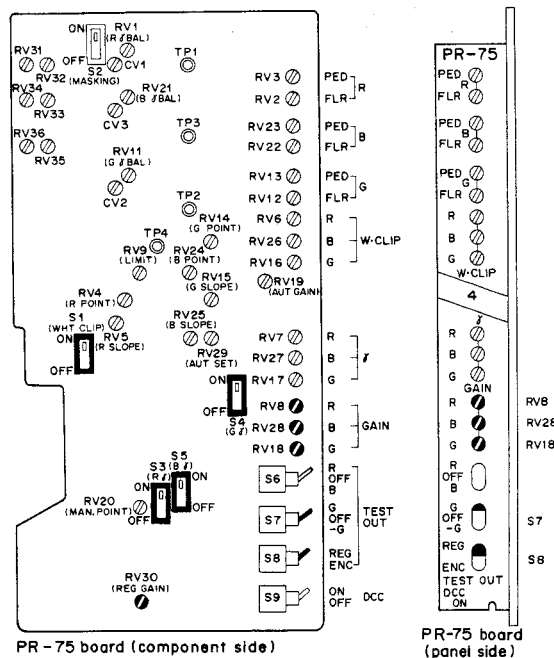
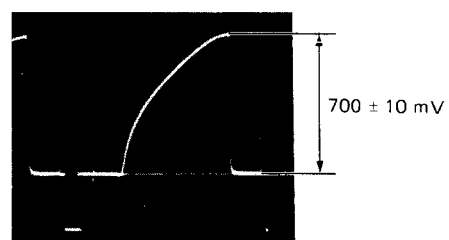
2. S8 **REG/ENC**/PR-75 board → ENC
3. Adjust the RV8 **R. GAIN** and RV28 **B. GAIN**/PR-75 board so that the carrier leakage at the peak of the test signal waveform at the TEST OUT terminal is minimized.



4-3-19. Registration Video Gain Adjustment

Note: Be sure to carry out 4-3-18. PR Gain Adjustment before this adjustment.

Measuring equipment : Waveform monitor
 To be extended : PR-75 board
 Preparations : S1 **WHT CLIP** → OFF
 S8 **REG/ENC** → REG
 S7 **G/-G** → G
 S6 **R/G** → OFF
 To be measured : TEST OUT terminal
 To be adjusted : RV30 /PR-75 board
 Specification : 700 ± 10 mV



4-3-20. EN Y Level Adjustment

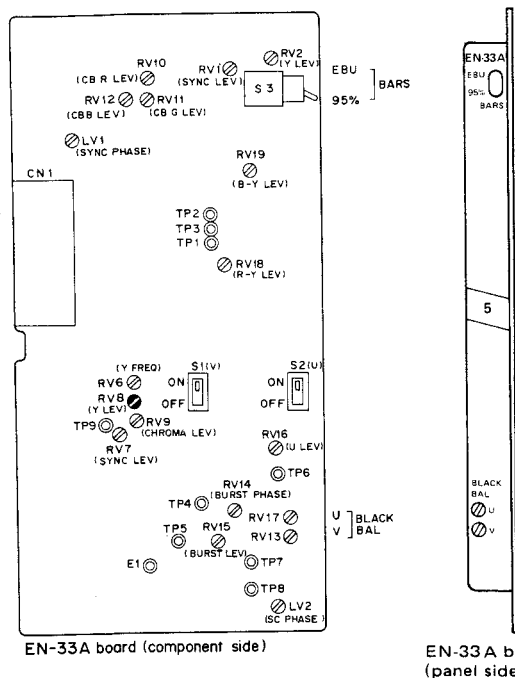
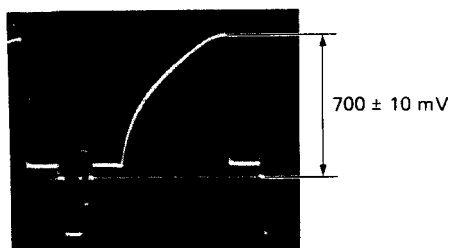
Note: Be sure to carry out 4-3-18. PR Gain Adjustment before this adjustment.

Measuring equipment : Waveform monitor

To be extended : EN-33A board

Preparation : S1 TEST/SH-8A board → ON
 S1 WHT CLIP → OFF
 S8 REG/ENC → ENC } /PR-75 board

Adjust the \odot RV8/EN-33A board so that the peak level of the test signal waveform at the TEST OUT terminal is 700 ± 10 mV.

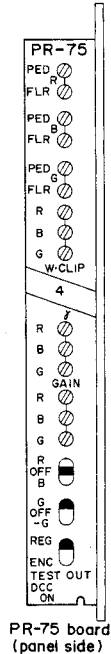
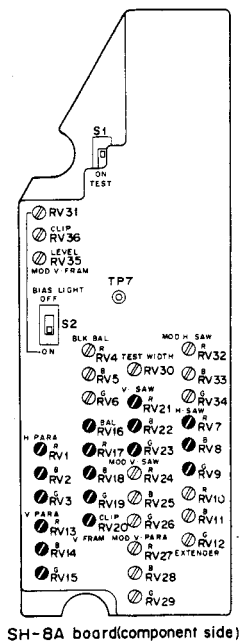


4-3-21. BLACK Shading Adjustment

- Lens : Close
- Measuring equipment : Waveform monitor
- Preparations : GAIN switch → 18 dB
S8 REG/ENC/PR-75 board → REG
S1 TEST/SH-8A board → OFF
- Adjustment : Adjust the RVs so that all waveforms are flat. The following table shows the corresponding RVs and the symptoms of shading.

| | Switch setting on the PR-75 board | Adjusting point on the SH-8A board | | | | | | |
|----------|---|------------------------------------|-------|--------|--------|--------|------------|-------------|
| | | H·SAW | V·SAW | H·PARA | V·PARA | V·FRAM | V·FRAM BAL | V·FRAM CLIP |
| G | S7 G/-G → G S6 R/B → OFF | RV9 | RV23 | RV3 | RV15 | RV19 | RV16 | RV20 |
| R | S7 G/-G → OFF S6 R/B → R | RV7 | RV21 | RV1 | RV13 | RV17 | | |
| B | S7 G/-G → OFF S6 R/B → B | RV8 | RV22 | RV2 | RV14 | RV18 | | |
| TEST OUT | | | | | | | | |

Note: After this adjustment is completed, reset the GAIN switch to 0 dB.



4-3-22. White Shading Adjustment

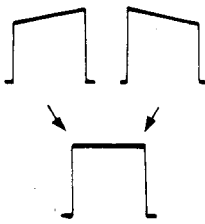
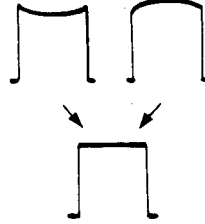
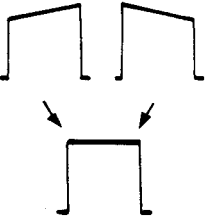
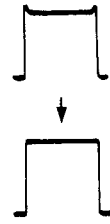
Object : White window chart
 Measuring equipment : Waveform monitor
 Preparations : S1 **WHT CLIP** → OFF } /PR-75
 S8 **REG/ENC** → REG } board

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the video level at the TEST OUT terminal is 700 mV.
3. Adjust RVs so that all waveforms are flat, following table is shown the corresponding RVs and the symptoms of shading.

Notes: The EXT MOD SAW adjustment can be performed when the lens with an extender is used.

Set the lens EXT lever at the X2 position and adjust the iris control so that the video level at the TEST OUT terminal is 700 mV, and then perform the EXT MOD SAW adjustment.

After the adjustment is completed, reset the EXT lever at the X1 position.

| | Switch setting on the PR-75 board | Adjusting point on the SH-8A board | | | |
|-------------------------------|---|---|--|---|-----------------|
| | | MOD H·SAW | MOD V·SAW | MOD V·PARA | EXT MOD SAW (V) |
| G | S7 G/-G → G S6 R/B → OFF | RV34 | RV26 | RV29 | RV12 |
| R | S7 G/-G → OFF S6 R/B → R | RV32 | RV24 | RV27 | RV10 |
| B | S7 G/-G → OFF S6 R/B → B | RV33 | RV25 | RV28 | RV11 |
| TEST OUT | |  |  |  | |
| | | CLIP | MOD V·FRAME | | |
| S8 REG/ENC → ENC | | RV36 | RV35 | | |
| TEST OUT | |  | | | |

RV31

CLIP

RV36

LEVEL

RV35

MOD V·FRAM

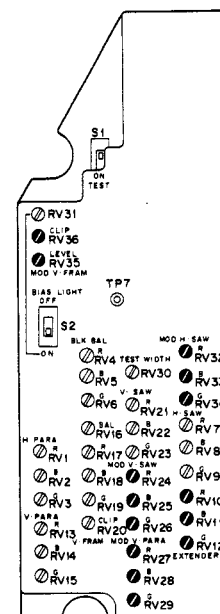
BIAS LIGHT

OFF

TP7

ON

TEST

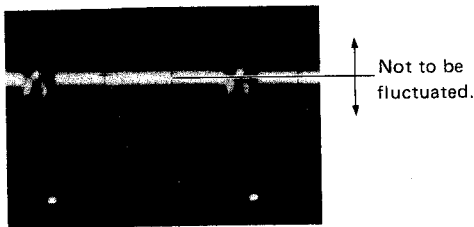


SH-8A board(component side)

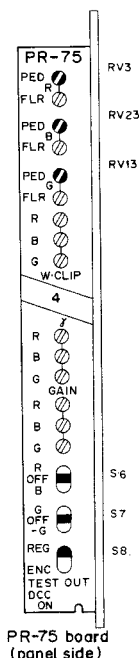
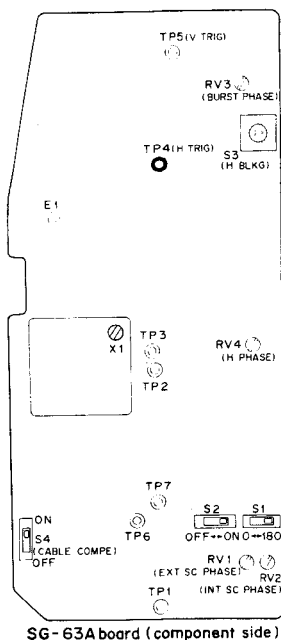
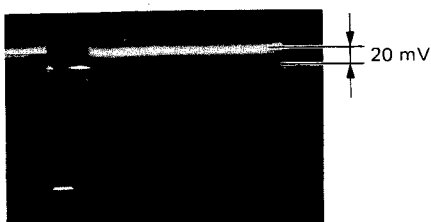
4-3-23. Black Balance and Pedestal Adjustment

Lens : Close
 Measuring equipment : Waveform monitor,
 Vectorscope (MAX GAIN)
 To be extended : VA-23 board
 Preparations : Reset the S4/AT-16 board at the
 OP position after it is set at PRST.
 S8 **REG/ENC** → REG
 S7 **G/-G** → G
 S6 **R/B** → OFF
 Pedestal → mechanical center
 Trigger : TP4 (H. TRIG)/SG-63A board

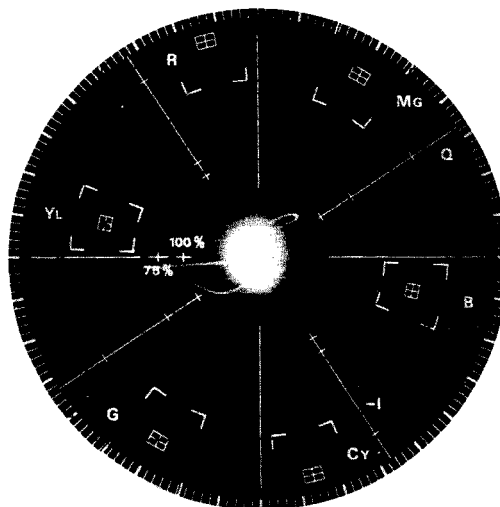
1. RV4 (R. BAL)/SH-8A board
 RV5 (B. BAL) → Fully counterclockwise
2. When the GAIN switch is changed over from 0 dB to 9 dB and 18 dB, adjust the RV6/SH-8A board so that the black level at B5/Extension board does not change.



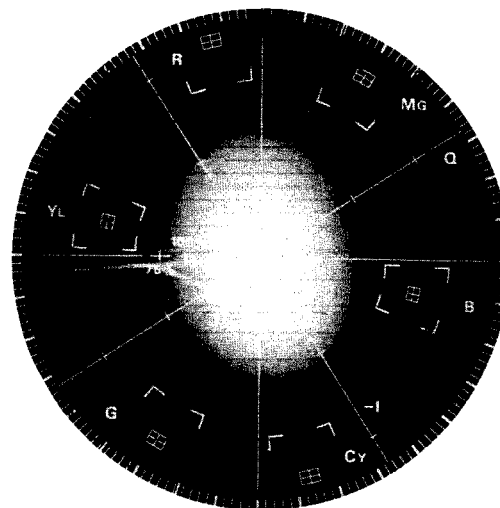
3. Adjust the RV13 **G. PED**/PR-75 board so that the pedestal level is 20 mV.



4. S8 **REG/ENC**/PR-75 board → ENC
5. Adjust the RV3 **R. PED** and RV23 **B. PED**/PR-75 board so that the beam spot is in the center of the vectorscope.



6. GAIN switch → 18 dB.
7. Finely adjust the RV1 and RV2/DUS-122 board RV4 and RV5/SH-8A board so that the beam spot is in the center of the vectorscope.



8. Repeat Step 1 through Step 7 until both specifications are satisfied.
9. GAIN switch → 0 dB

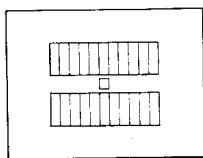
4-3-24. Gamma Correction Adjustment

Object : Grayscale chart (11 step)
 Measuring equipment : Waveform monitor
 To be extended : PR-75 board

Preparations : S1 **WHT CLIP** → OFF
 S8 **REG/ENC** → REG
 S7 **G/-G** → G
 S6 **R/B** → OFF
 S3 **R_y** → ON
 S4 **G_y** → ON
 S5 **B_y** → ON

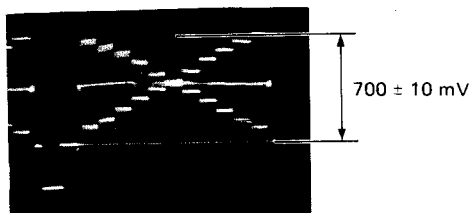
/PR-75 board

- Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.

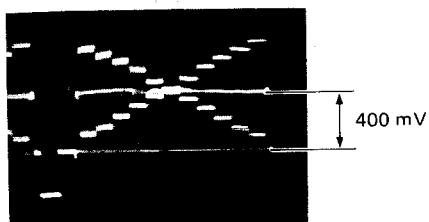


Monitor

- Adjust the iris control so that the peak level at the TEST OUT terminal is 700 ± 10 mV.

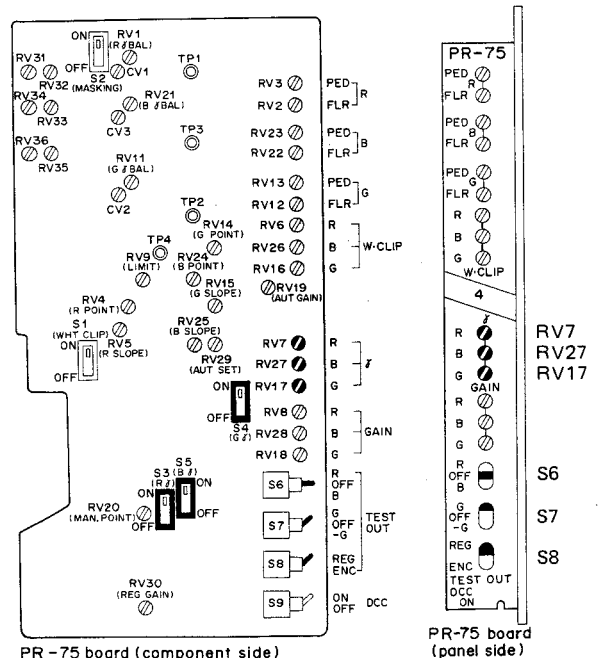
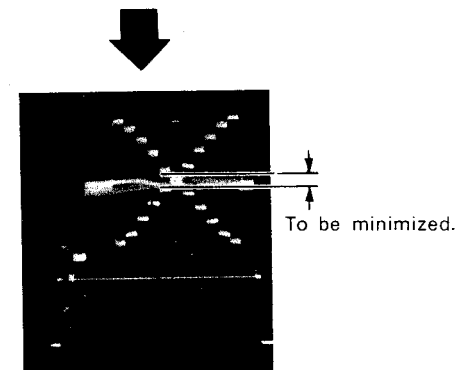
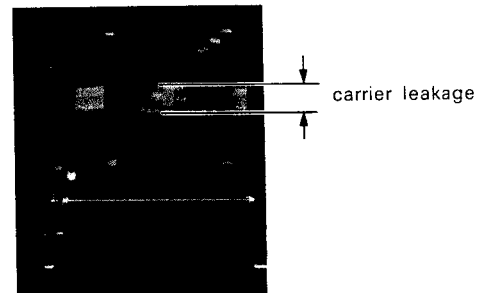


- Adjust the \odot RV17 **G_y**/PR-75 board so that the cross point on the waveform signal at the TEST OUT terminal is 400 mV.



- S8 **REG/ENC**/PR-75 board → ENC.

- Adjust the \odot RV7 **R_y** and \odot RV27 **B_y**/PR-75 board so that the carrier leakage at the cross point on the waveform signal is minimized.



4-3-25. Knee, White Clip Adjustment

Measuring equipment : Waveform monitor

To be extended : PR-75 board

Preparations : S1 **TEST**/SH-8A board → ON

S3 **Ry** → ON

S4 **Gy** → ON

S5 **By** → ON

S1 **WHT CLIP** → ON

S8 **REG/ENC** → REG

S7 **G/-G** → G

S6 **R/B** → OFF

S9 **DCC** → ON

RV16 **G W. CLIP** →

Fully counterclockwise

RV6 **R W. CLIP** →

Fully counterclockwise

RV26 **B W. CLIP** →

Fully counterclockwise

RV15 → Fully clockwise

RV5 → Fully clockwise

RV25 → Fully clockwise

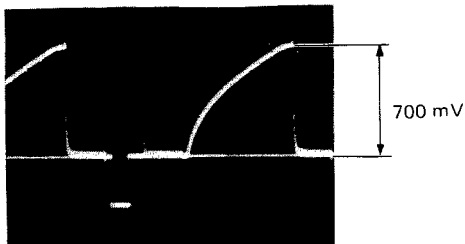
GAIN switch → 0 dB

/PR-75
board

Trigger : TP4 (H. TRIG)/SG-63A board

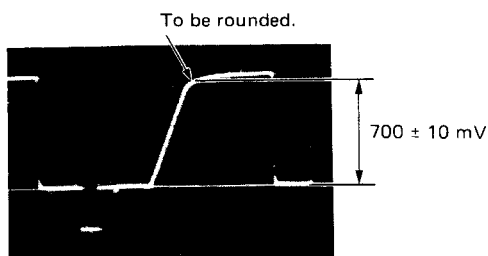
* MANUAL KNEE WHITE CLIP ADJUSTMENT*

1. Adjust the RV20 (MAN. POINT)/PR-75 board turning from fully counterclockwise to fully clockwise slowly so that the peak level at the waveform signal is a start point at 700 mV.



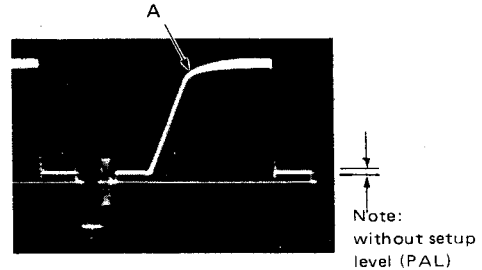
2. GAIN switch → 9 dB

3. Adjust the RV14/PR-75 board so that the knee point at test signal waveform is 700 mV.



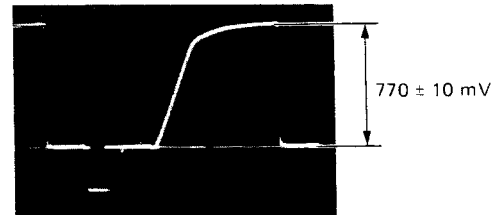
4. S8 **REG/ENC**/PR-75 board → ENC

5. Adjust both RV4 and RV24/PR-75 board so that the carrier leakage at the knee point (portion A) on the test waveform signal is minimized.



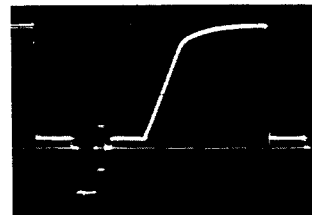
6. S8 **REG/ENC**/PR-75 board → REG

7. Adjust the RV15/PR-75 board so that the peak level at the waveform signal is 770 ± 10 mV.



8. S8 **REG/ENC**/PR-75 board → ENC

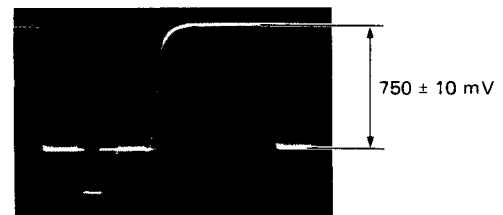
9. Adjust both RV5 and RV25/PR-75 board so that the carrier leakage at the TEST OUT waveform signal is minimized.



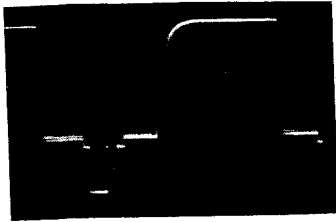
10. GAIN switch → 18 dB

S8 **REG/ENC**/PR-75 board → REG

11. Adjust the RV16 **G W. CLIP**/PR-75 board so that the video level at the TEST OUT terminal is 750 ± 10 mV.

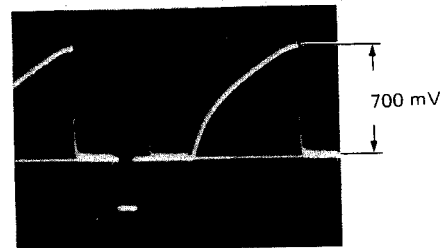


12. S8 **REG/ENC**/PR-75 board → ENC.
13. Adjust both **RV6** **R W. CLIP** and **RV26** **B W. CLIP**/PR-75 board so that the carrier leakage at the TEST OUT waveform signal is minimized.



AUTO KNEE WHITE CLIP ADJUSTMENT

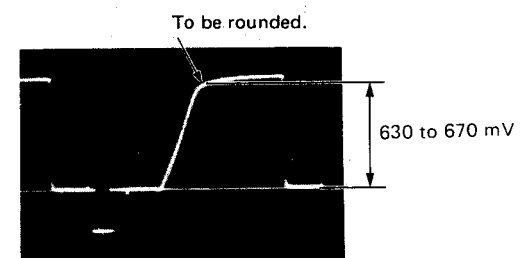
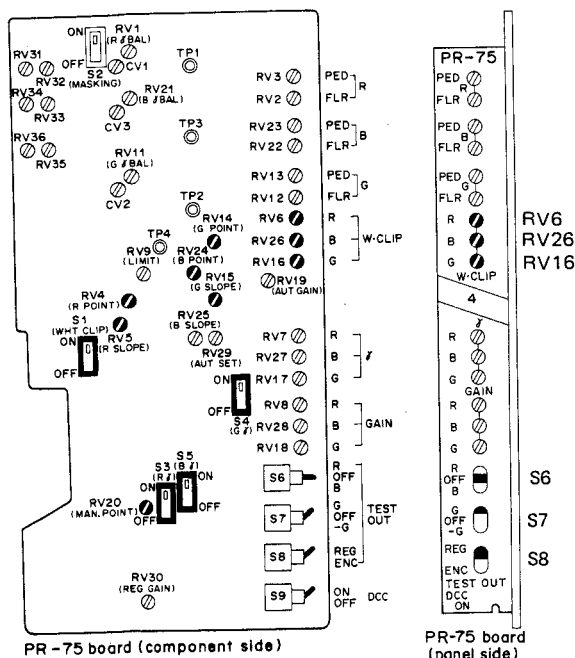
14. S8 **REG/ENC** → REG
 S7 **G/-G** → G
 S6 **R/B** → OFF
 S9 **DCC** → ON
RV9 (LIMIT) → Fully counterclockwise \odot
RV29 (AUTO SET) → mechanical center
 GAIN switch → 0 dB
15. Adjust the **RV19 (AUTO GAIN)**/PR-75 board turning from fully clockwise to fully counterclockwise slowly so that the peak level at the waveform signal is a start point at 700 mV.



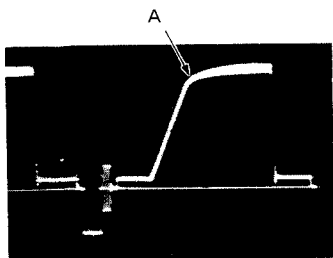
16. Adjust the **RV29 (AUTO SET)**/PR-75 board so that the peak level of test waveform signal at TP4/PR-75 board is 0.15 ± 0.01 Vp-p.



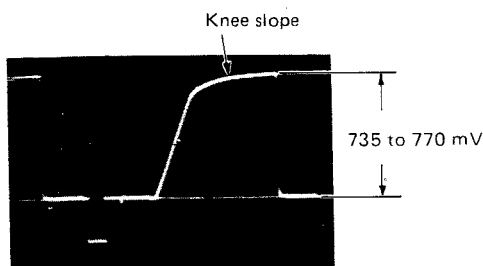
17. GAIN switch → 9 dB
18. Adjust the **RV14/PR-75** board so that the knee point at test signal waveform is 630 to 670 mV.



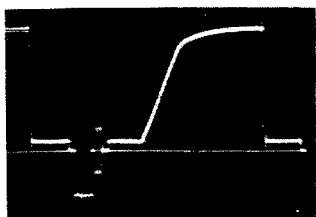
19. S8 **REG/ENC** /PR-75 board → ENC
20. Adjust both **RV4** and **RV24**/PR-75 board so that the carrier leakage at the knee point (portion A) on the test waveform signal is minimized.



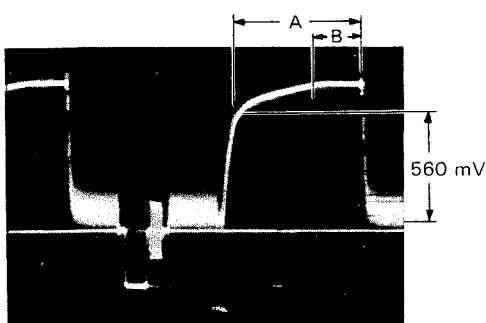
21. S8 **REG/ENC** /PR-75 board → REG
22. Adjust the **RV15**/PR-75 board so that the peak level at the waveform signal is 735 to 770 mV. Be sure that the knee slope (portion A) is a straight line as possible.



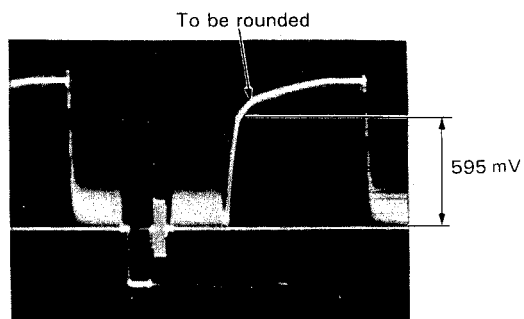
23. S8 **REG/ENC** /PR-75 board → ENC
24. Adjust both **RV5** and **RV25**/PR-75 board so that the carrier leakage at the TEST OUT waveform signal is minimized.



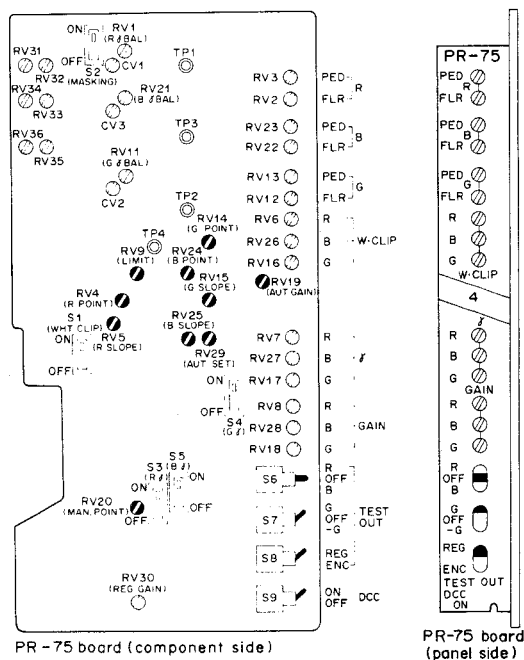
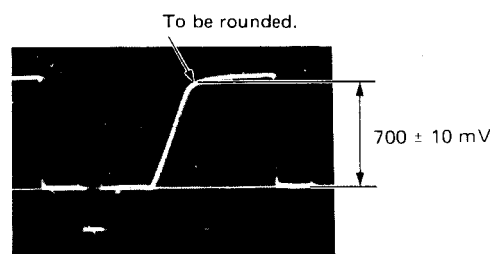
25. GAIN switch → 18 dB
26. Adjust Steps 17 to 23 repeatedly, so that the knee point on the test waveform signal is 560 mV and $B/A \leq 1/3$.



27. Adjust the **RV9** (LIMIT)/PR-75 board so that the knee point on the test waveform signal is 595 mV.



28. GAIN switch → 9 dB
S8 **REG/ENC** /PR-75 board → REG
S9 **DCC** /PR-75 board → OFF
29. Adjust the **RV20** (MAN. POINT)/PR-75 board so that the knee point on the test waveform signal is 700 ± 10 mV.

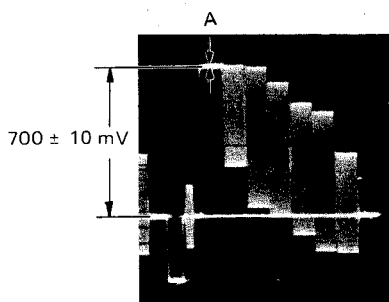


4-3-26. Color Bar Adjustment

Note: Be sure to carry out 4-3-20. EN Y Level Adjustment before this adjustment.

Equipment : Waveform monitor
 Preparations : OUTPUT switch → BARS
 S3 **[BARS]** /EN-33A board → EBU
 S8 **[REG/ENC]** /PR-75 board → ENC
 To be measured : TEST OUT terminal

1. Adjust the \odot RV10, RV11 and RV12/EN-33A board so that the portion A at the color-bar waveform signal is 700 ± 10 mV and the carrier leakage is minimized.

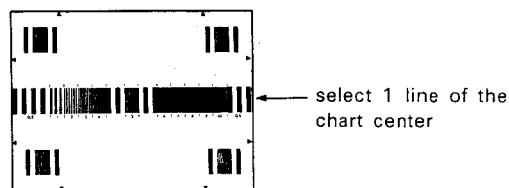


4-3-27. EN Frequency Response Adjustment

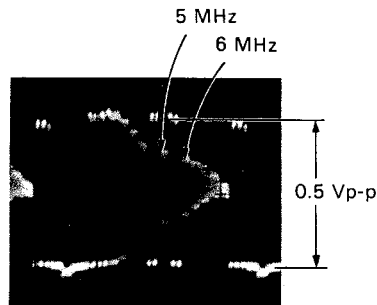
Object : Multiburst chart
 Equipment : Oscilloscope, Waveform monitor
 Preparations : S1 **[V]** → OFF
 S2 **[U]** → OFF } /EN-33A board
 S8 **[REG/ENC]** /PR-75 board → ENC
 Trigger : TP5 (V. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.

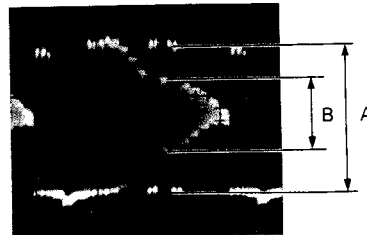
Monitor (Underscanning)



2. Adjust the iris control so that the video level corresponding to 0.5 MHz at the A9/EN-33A board is 0.5 Vp-p. And adjust the focus control so that the waveform signal amplitude at both 5 MHz and 6 MHz are maximized.

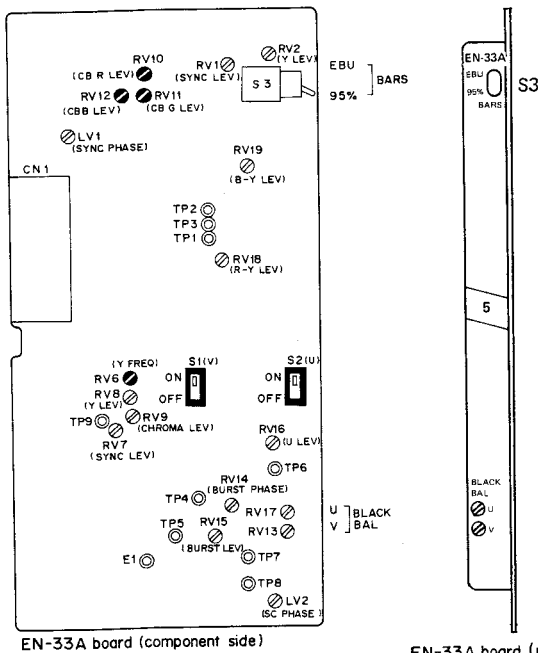


3. Adjust the \odot RV6/EN-33A board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at the TEST OUT terminal (OUTPUT) is same as that at A9 (INPUT)/extension board.



$$\frac{B}{A} = \frac{B}{A}$$

Note: After adjustment, set both S1 **[V]** and S2 **[U]** /EN-33A board at ON.

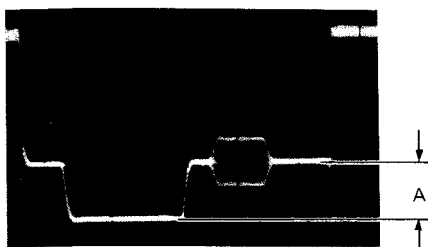


EN-33A board (component side)

EN-33A board (panel side)

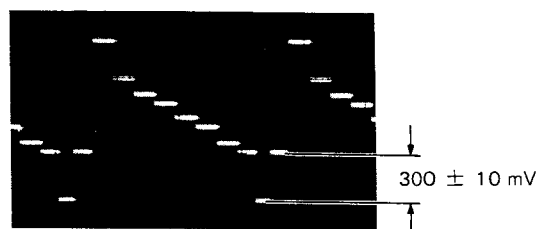
4-3-28. EN SYNC Adjustment

Equipment : Waveform monitor
 To be measured : TEST OUT terminal
 Trigger : TP4 (H. TRIG)/SG-63A board
 To be adjusted : RV7/EN-33A board
 Specification : $A = 300 \pm 10 \text{ mV}$



4-3-30. VTR SYNC Adjustment

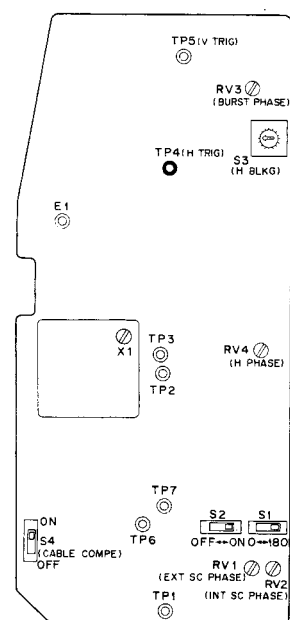
Equipment : Oscilloscope
 To be measured : B13 (GND)/EN-33A board
 Trigger : TP4 (H. TRIG)/SG-63A board
 To be adjusted : RV1/EN-33A board
 Specification : $300 \text{ mV} \pm 10 \text{ mV}$



4-3-29. VTR Y Adjustment

Equipment : Oscilloscope
 Preparations : OUTPUT switch → BARS
 S3 [BARS]/EN-33A board → EBU
 To be measured : B13 (GND)/EN-33A board
 Trigger : TP4 (H. TRIG)/SG-63A board

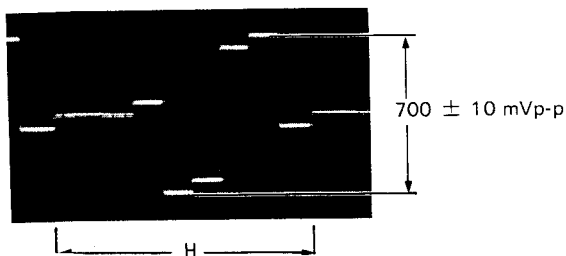
1. Adjust the RV2/EN-33A board so that the waveform signal level is $700 \pm 10 \text{ mV}$.



SG-63A board (component side)

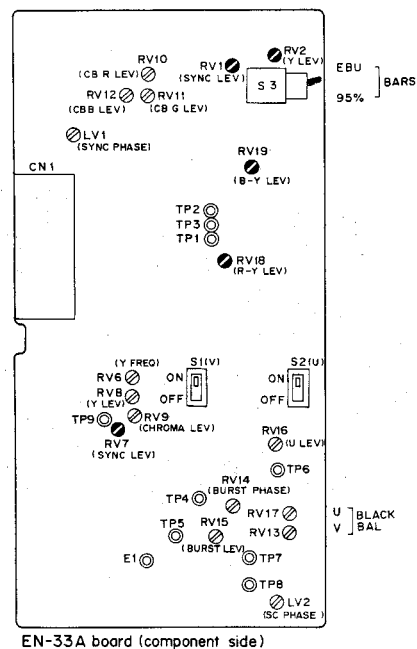
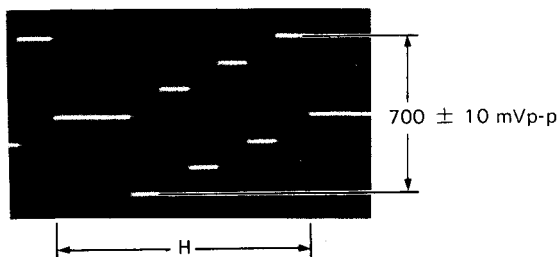
4-3-31. VTR R-Y Gain Adjustment

Equipment : Oscilloscope
 Preparation : OUTPUT switch → BARS
 To be measured : A17 (≡ GND)/EN-33A board
 Trigger : TP4 (H. TRIG)/SG-63A board
 To be adjusted : ● RV18/EN-33A board
 Specification : 700 ± 10 mVp-p



4-3-32. VTR B-Y Gain Adjustment

Equipment : Oscilloscope
 Preparation : OUTPUT switch → BARS
 To be measured : A14 (≡ GND)/EN-33A board
 Trigger : TP4 (H. TRIG)/SG-63A board
 To be adjusted : ● RV19/EN-33A board
 Specification : 700 ± 10 mVp-p



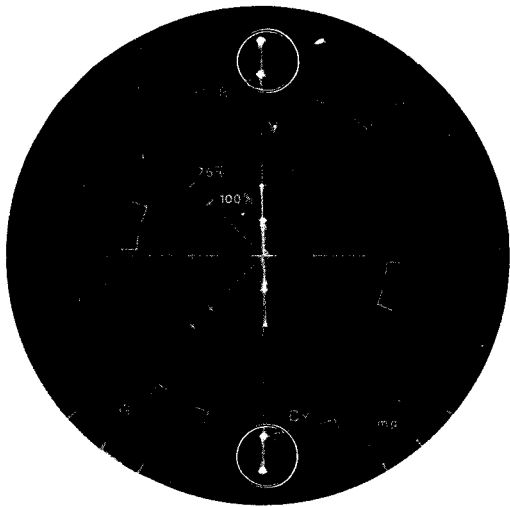
4-3-33. V.U Gain Adjustment

Equipment : Vectorscope

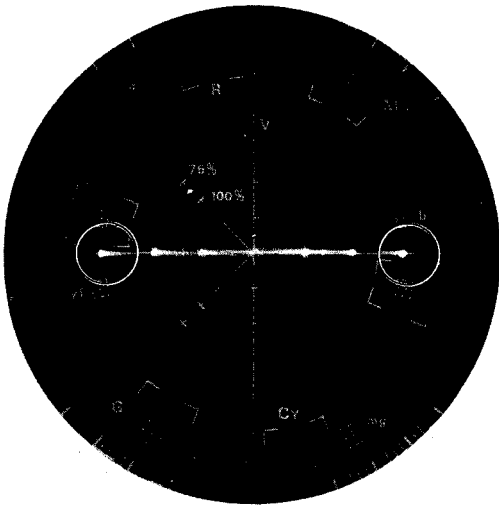
Preparation : OUTPUT switch \rightarrow BARS

To be measured : TEST OUT terminal

- S1 ☐ → ON
 S2 ☐ → OFF
 S8 ☐ /PR-75 board → ENC
- Adjust the PHASE control of the vectorscope so that the V signal is overlapped with V axis on the vectorscope.
- Adjust the ☐ RV9/EN-33A board so that the beam spots at both ends of the V signal are overlapped with the scale of the vectorscope.



4. S1 ☐ \rightarrow OFF
S2 ☐ \rightarrow ON } /EN-33A board
5. Adjust the PHASE control of the vectorscope so that the U signal is overlapped with U axis on the vectorscope.
6. Adjust the \odot RV16/EN-33A board so that the beam spots at both ends of the U signal are overlapped with the scale of the vectorscope.






Note: After this adjustment is completed, set the S1 ☒ /EN-33A board at ON.

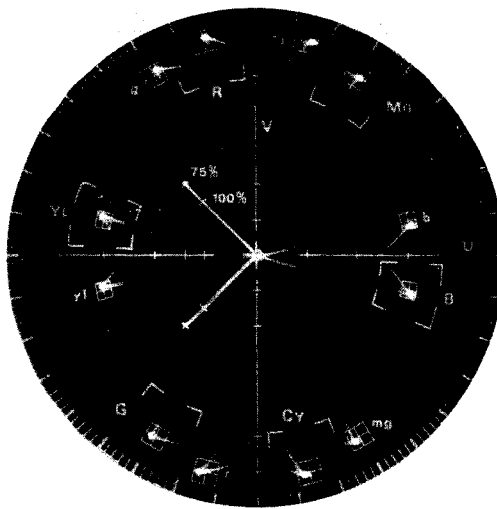
4-3-34. Burst Adjustment


Equipment : Vectorscope

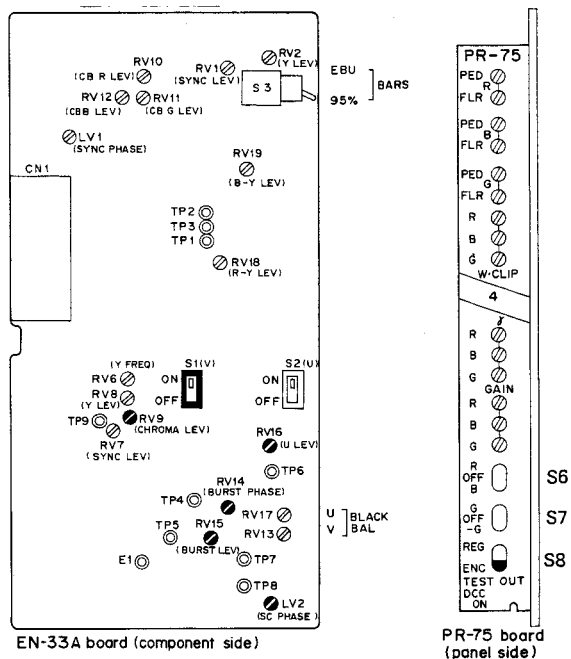
Preparation : OUTPUT switch \rightarrow BARS

S8 REG/ENC /PR-75 board → ENC

- 1 Adjust the  RV14,  RV15 and  LV2/EN-33A board so that the burst signals are overlapped with the 75% scale as shown below.



2. Check whether the each bright spot of the color bars is located in the scale () of vectorscope.
If not, readjust 4-3-32. V.U Gain Adjustment.



[IE-6P BOARD ADJUSTMENT]

To be extended : IE-6P board

Preparations : S3 ☐ DTL /IE-6P board → ON

S8 ☐ REG/ENC /PR-75 board → ENC

4-3-35. Clipping Point Adjustment

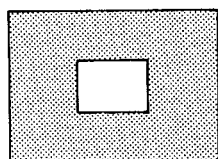
Object : White window chart

Equipment : Oscilloscope

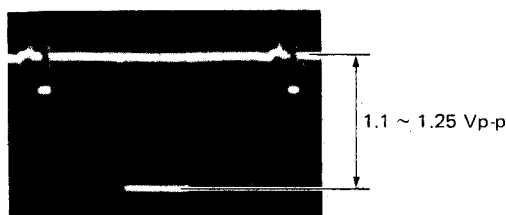
Trigger : TP4 (H. TRIG)/SG-63A board

1. Shoot the white window chart as shown below.

Monitor



2. Adjust the ☒ RV1/IE-6P board so that the waveform signal level at TP2/IE-6P board is clipped at 1.1 through 1.25V when the lens iris is set at OPEN.



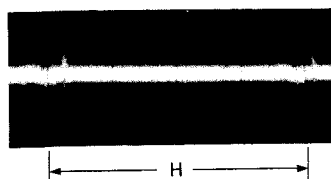
4-3-36. 1H and 2H Delay Signal Phase Adjustment

Object : White window chart

Equipment : Oscilloscope

Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the ☒ CV2 and ☒ CV3/IE-6P board so that the H. DTL signal does not appear at TP3/IE-6P board.



4-3-37. IE Frequency Response Adjustment

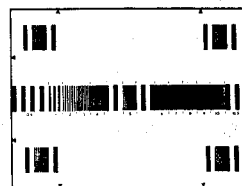
Object : Multiburst chart

Equipment : Oscilloscope

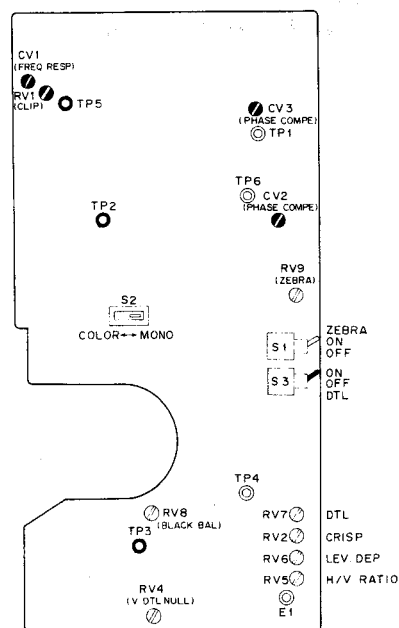
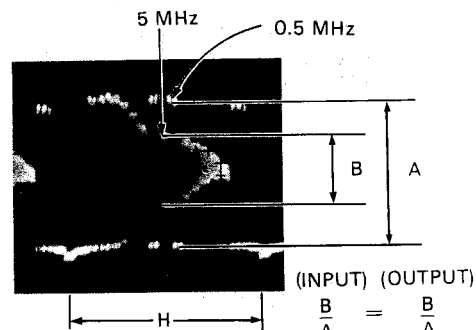
Trigger : TP5 (V. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.

Monitor



2. Adjust the iris control so that the video level corresponding to 0.5 MHz at TP5/IE-6P board is 0.5V. And adjust the focus control so that the waveform amplitude at 5 MHz and 6 MHz is maximized.
3. Adjust the ☒ CV1/IE-6P board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at TP2/IE-6P board is same as that at TP5/IE-6P board.

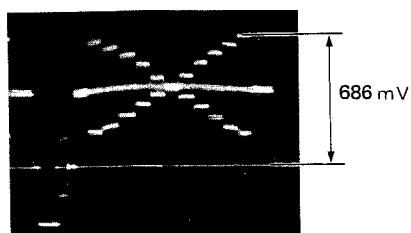


IE-6P board (component side)

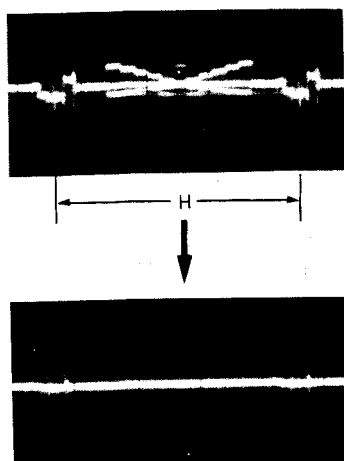
4-3-38. V. DTL NULL Adjustment

Object : Grayscale chart
Equipment : Waveform monitor, Oscilloscope
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the iris control so that the video level at the TEST OUT terminal is 686 mV.



2. Adjust the \odot RV4/IE-6P board so that the waveform amplitude at TP3/IE-6P board is minimized.

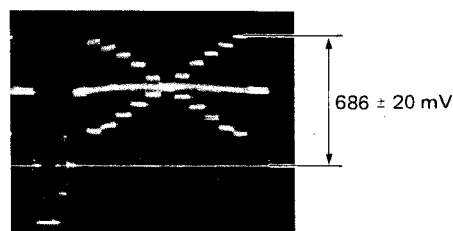


APPLICABLE SERIAL No.
BVP-30AP(EK): UP TO 10160

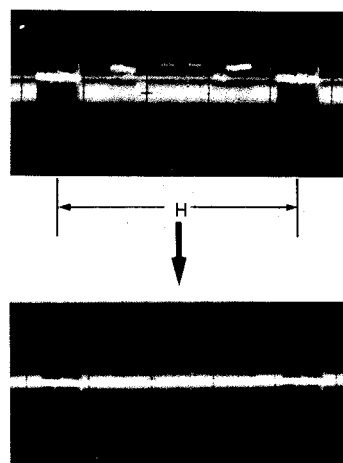
4-3-39. Black Balance Adjustment

Object : Grayscale chart
Equipment : Oscilloscope, Waveform monitor
Preparations : \odot RV7 $\left\{ \begin{array}{l} \text{DTL} \rightarrow \text{Fully} \\ \text{CRISP} \rightarrow \text{Fully} \end{array} \right.$ } IE-6P board
 \odot RV6 $\left\{ \begin{array}{l} \text{LEV. DEP} \rightarrow \text{Fully} \end{array} \right.$ } board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 ± 20 mV.



2. Adjust the \odot RV8/IE-6P board so that the waveform amplitude at TP4/IE-6P board is minimized.



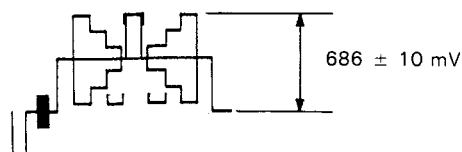
Note: When this adjustment is done, continue to adjust till DTL Gain Adjustment (4-3-42).

APPLICABLE SERIAL No.
BVP-30AP(EK): 10161 AND HIGHER

4-3-39. Black Balance Adjustment

Object : Grayscale chart
Measuring equipment: Oscilloscope, Waveform monitor
Preparations : \odot RV7 **DTL** → Fully clockwise \odot
 \odot RV2 **CRISP** → Fully counter clockwise \odot } /IE-6P board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 ± 10 mV.



2. Turn \odot RV6/IE-6P board to fully counter clockwise \odot , then adjust the \odot RV6 to clockwise direction so that waveform at TP4/IE-6P board is like a following Fig-A.

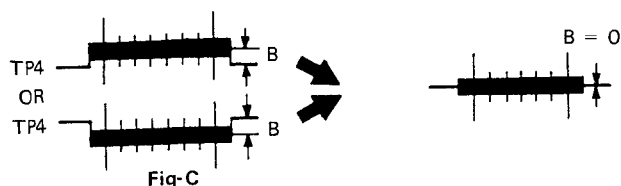


3. Adjust \odot RV8/IE-6P board so that the level A of Fig-B waveform at TP4/IE-6P board is level zero.



4. Turn \odot RV6/IE-6P board to fully counter, clockwise \odot .

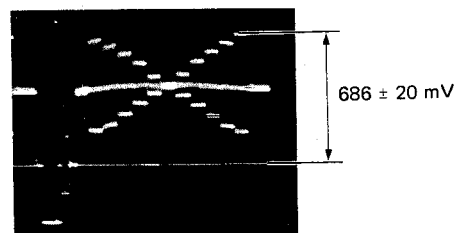
5. Adjust \odot RV11/IE-6P board so that the level B of Fig-C at TP4/IE-6P board is level zero.



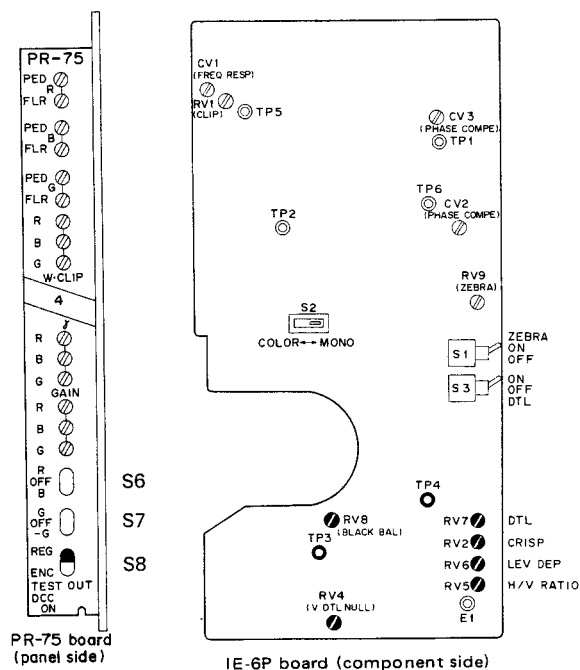
4-3-40. Crispening Adjustment

Object : Grayscale chart
Equipment : Waveform monitor
Preparations : \odot RV6 **LEV. DEP** → Fully counterclockwise \odot } /IE-6P board
 \odot RV5 **H/V RATIO** → Fully counterclockwise \odot
S8 **REG/ENC** → REG } PR-75 board
S7 **G/-G** → G
S6 **R/B** → OFF

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 ± 20 mV.
2. Adjust the \odot RV2 **CRISP** /IE-6P board for such a position that noise of the output waveform on waveform monitor starts to be reduced.



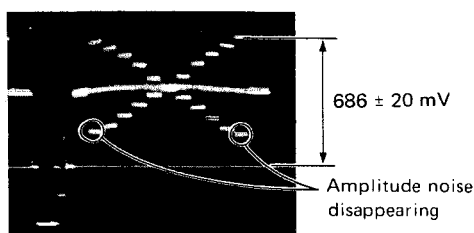
Note: After this adjustment is completed, be sure to carry out 4-3-40. Level Dependent Adjustment.



4-3-41. Level Dependent Adjustment

Object : Grayscale chart
 Equipment : Waveform monitor
 Preparations : S8 **REG/ENC** → REG } PR-75 board
 S7 **G/-G** → G
 S6 **R/B** → OFF

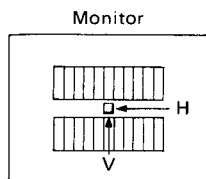
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 ± 20 mV.
2. Adjust the \odot RV4 **LEV. DEP** /IE-6P board so that the DTL signal is not added to the lowermost step of grayscale waveform signal.



4-3-42. H/V Ratio Adjustment

Object : Grayscale chart
 Preparation : \odot RV7 **DTL** /IE-6P board
 → Fully clockwise \odot

1. Adjust the \odot RV5 **H/V RATIO** /IE-6P board so that the monitor H and V DTL amounts are the same.



Note: After this adjustment is completed, be sure to carry out 4-3-42 DTL Gain Adjustment.

4-3-43. DTL Gain Adjustment

Object : Grayscale chart
 To be adjusted : \odot RV7 **DTL** /IE-6P board

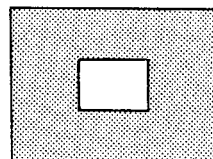
1. Set the \odot RV7 **DTL** according to the users' requirements while observing the monitor.

4-3-44. VF Zebra Adjustment

Object : White window chart
 Equipment : Waveform monitor
 Preparations : S8 **REG/ENC** /PR-75 board → ENC
 S1 **ZEBRA** /IE-6P board → ON

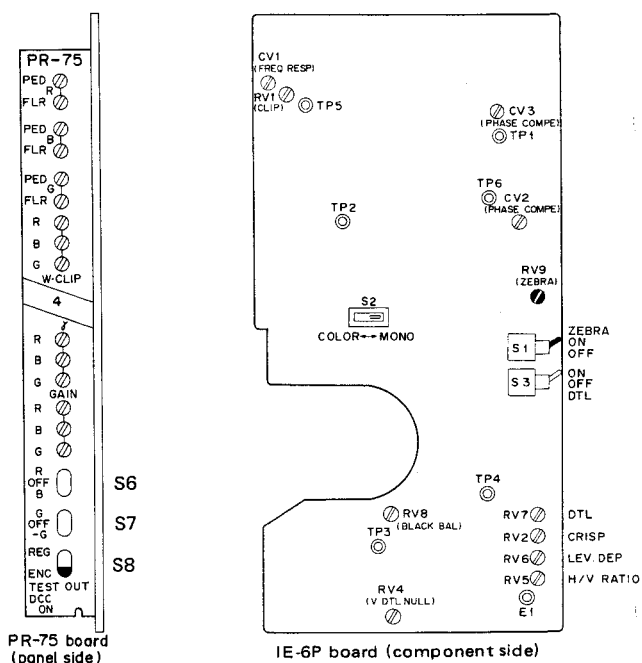
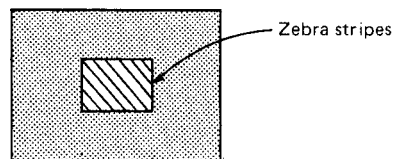
1. Shoot the white window chart as shown below.

Monitor



2. Adjust the iris control so that the video level at the TEST OUT terminal is 500 mV.
3. Adjust the \odot RV9 /IE-6P board so that the viewfinder has zebra stripes.

Viewfinder

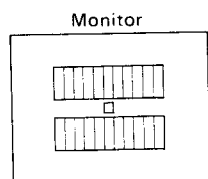


[AUTO IRIS ADJUSTMENT]

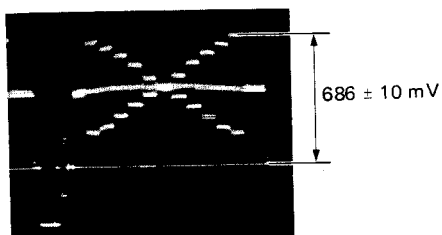
4-3-45. Iris Level Adjustment

Object : Grayscale chart
 Equipment : Waveform monitor
 Lens : AUTO/MANU switch → AUTO
 Preparation : ●RV1/AT-16 board → Mechanical center

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.

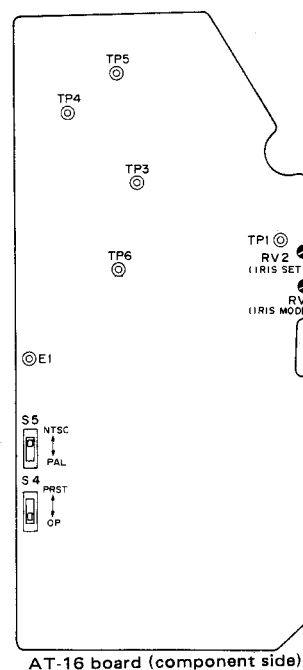


2. Adjust the ●RV2/AT-16 board so that the video level at the TEST OUT terminal is 690 mV.



4-3-46. Iris Mode Adjustment

Adjustment: By adjusting the ●RV1/AT-16 board, the iris drive mode can be varied between the mean value and the peak value of video signal. Ordinarily it is set in the middle between the mean and peak values. Adjust according to your purpose. When this adjustment is done, be sure to do the Iris Level Adjustment (4-3-44) too.

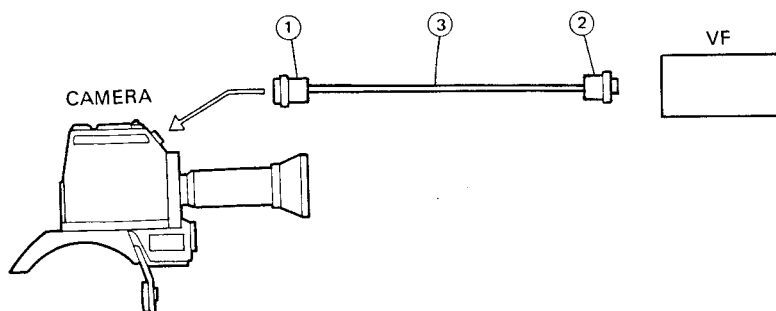


AT-16 board (component side)

HOW TO MAKE THE VF EXTENSION CABLE

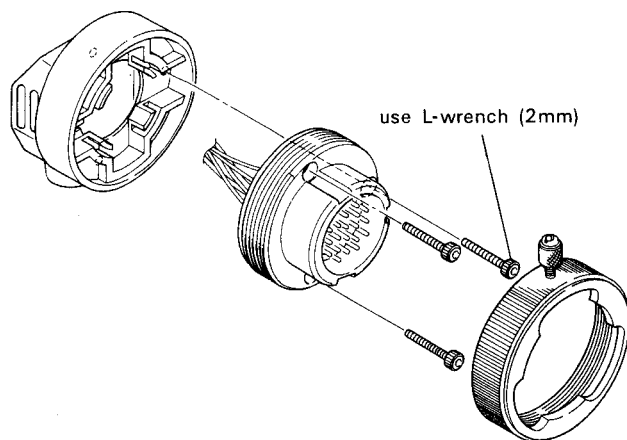
1. Requisite Parts.

- ① 20P-CONNECTOR (male) 1-560-704-21
- ② 20P-CONNECTOR (female) ... 1-561-812-00
- ③ CABLE (WIRE: Single ... 3, Shield ... 1)

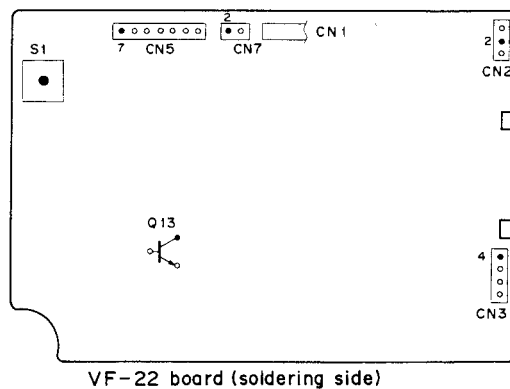
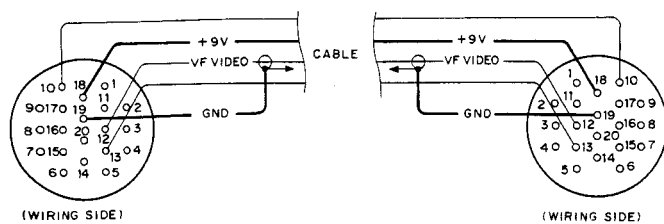


2. Remove 20P-Connector

ex: male



3. WIRING

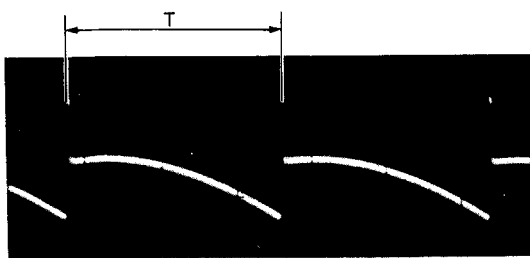


[VIEWFINDER SYSTEM ADJUSTMENT]

When adjusting the viewfinder, turn it 180° so that it is upside down.
Be sure that the camera is adjusted completely.
Set the lens iris to AUTO, unless otherwise specified.

4-3-47. V Hold Adjustment

Equipment : Oscilloscope
Preparation : Pull the IE-6 board out of the Camera.
Set the RV9/VF-22 board to mechanical center unless otherwise marked.
To be measured : 4 pin of CN3 (GND: E1)
To be adjusted : RV7/VF-22 board
Specification : $T = 25.6 \pm 0.5 \text{ ms}$



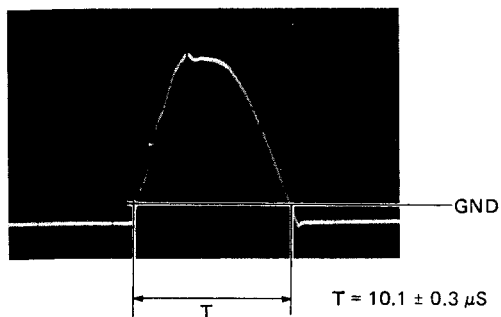
Note: After this adjustment is completed, insert the IE-6P board into the Camera.

4-3-48. Flyback Pulse Width Adjustment

Note: Carry out this adjustment only when the T2 (FLYBACK) /VF-22 board is replaced.

Measuring equipment: Oscilloscope (AC mode)
Preparations : **BRIGHT** → Fully counterclockwise ⚙
 CONTR → Fully counterclockwise ⚙
To be measured : Collector of Q13/VF-22 board (GND: E1)
Specification : $T = 10.1 \pm 0.3 \mu\text{s}$

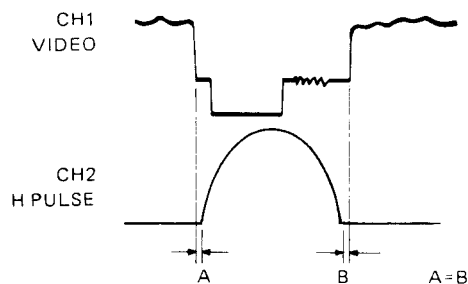
1. When the Flyback pulse width is out of the specification, replace the C19/VF-22 board from the list below so that the pulse width meets the specification.



| | | |
|------|--------------|----------|
| C19: | 1-136-287-11 | 0.0047μF |
| | 1-136-288-11 | 0.0051μF |
| | 1-136-289-11 | 0.0056μF |
| | 1-136-290-11 | 0.0062μF |
| | 1-136-291-11 | 0.0068μF |
| | 1-136-292-11 | 0.0075μF |
| | 1-136-293-11 | 0.0082μF |

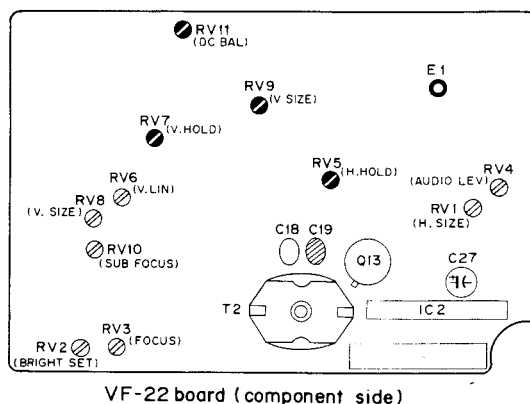
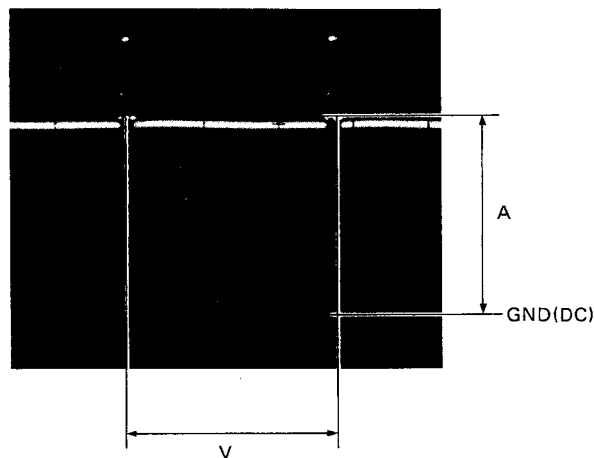
4-3-49. Horizontal Hold Adjustment

Measuring equipment : Oscilloscope
To be measured : CH1 2 pin of CN7/VF-22 board
 CH2 collector of Q13/VF-22 board (GND: E1)
Trigger : CH2
To be adjusted : RV5/VF-22 board



4-3-50. DC Balance Adjustment

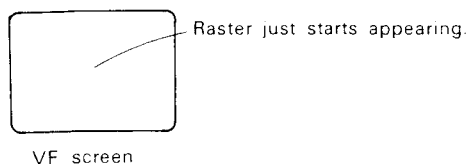
Lens : Close
Measuring equipment: Oscilloscope
To be measured : 2 pin of CN2 (GND: E1)
To be adjusted : RV11/VF-22 board
Specification : $A = 47 \pm 2V$



4-3-51. Brightness Adjustment

Lens : Close
 Preparations : **BRIGHT** → mechanical center
 CONTR → Fully counterclockwise ⤿
 To be adjusted : ⚙ RV2/VF-22 board

1. Adjust the ⚙ RV2/VF-22 board at the point where the raster just starts appearing.

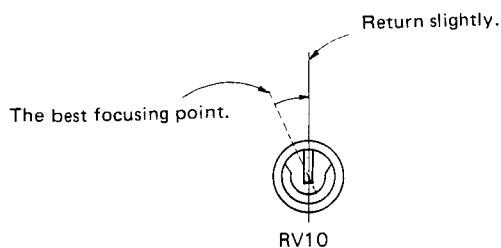


4-3-52. Focus Adjustment

Note: 4-3-53 Picture Frame Adjustment and this adjustment affect each other, so carry out these adjustment alternately until both specifications are satisfied.

Object : Resolution chart
 Lens : AUTO/MANU switch → "MANU"
 Preparations : S4 **WHT CLIP, KNEE** /PR-75 board → OFF
 BRIGHT → Mechanical center
 CONTR → Fully clockwise ⤿
 S1 (PEAKING) → OFF
 ⚙ RV10 → Fully clockwise ⤿ } VF-22 board

1. Adjust the lens iris so that the video level at TEST OUT terminal is 100 %.
2. Adjust the ⚙ RV3/VF-22 board so that the picture on the CRT is the best focused.
3. S1 (PEAKING) → ON
4. Turn the ⚙ RV10/VF-22 board counterclockwise ⤿ until the high peaked edges of the picture are the best focused, then return the ⚙ RV10 slightly.



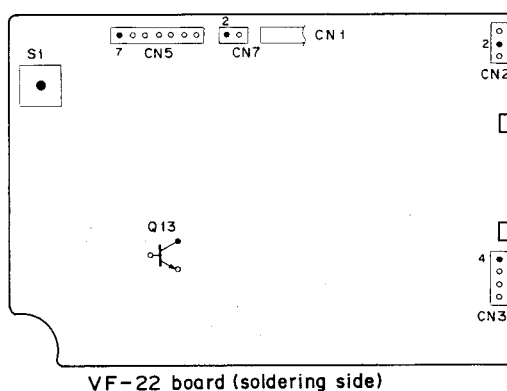
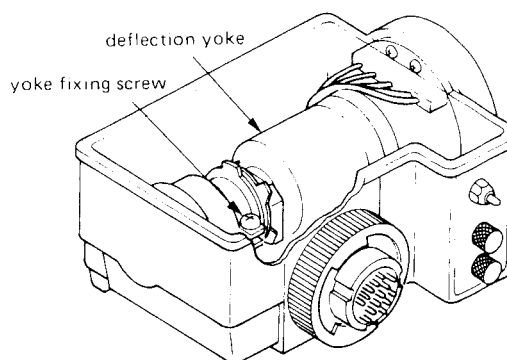
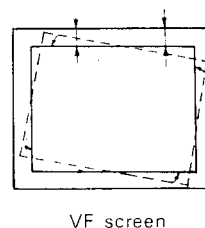
5. Set the S1 (PEAKING) at "OFF" and carry out Step 2 again.

Note: After this adjustment is completed, set the S4 **WHT CLIP, KNEE** /PR-75 board at "ON".

4-3-53. Deflection Yoke Tilt Adjustment

Adjustment

1. Loosen the deflection yoke fixing screw and turn the yoke until any inclination on the viewfinder picture is eliminated.
2. After this adjustment is completed, tighten the fixing screw.

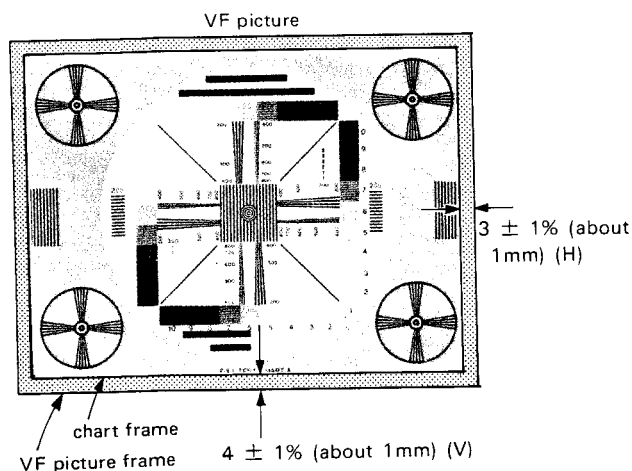


4-3-54. Picture Frame Adjustment

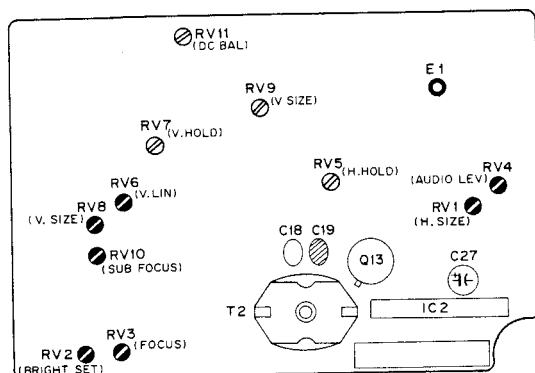
Note: 4-3-51. Focus Adjustment and this adjustment affect each other, so carry out these adjustment alternately until both specifications are satisfied.

Object : Resolution chart
 Preparations : Remove the eyecup from the viewfinder.
 S1 (PEAKING)/VF-22 board → OFF
 BRIGHT → Mechanical center
 CONTR → Mechanical center

1. Adjust the zoom control so that the Resolution chart frame touches the underscanned picture frame on the monitor.
2. Adjust the centering magnet so that the resolution chart is located in the center of the VF picture.
3. Adjust the RV1/VF-22 board so that the H size is underscanned $3 \pm 1\%$ (about 1mm) from the VF picture frame.
4. Adjust the RV8/VF-22 board so that the V size is underscanned $4 \pm 1\%$ (about 1mm) from the VF picture frame.



5. Adjust the RV6/VF-22 board so that the each circle on the corners of the Resolution chart becomes a true circle.
6. Adjust the centering magnet again so that the resolution chart is located in the center of the VF picture.
7. Adjust the inclination of the deflection yoke to a horizontal picture.

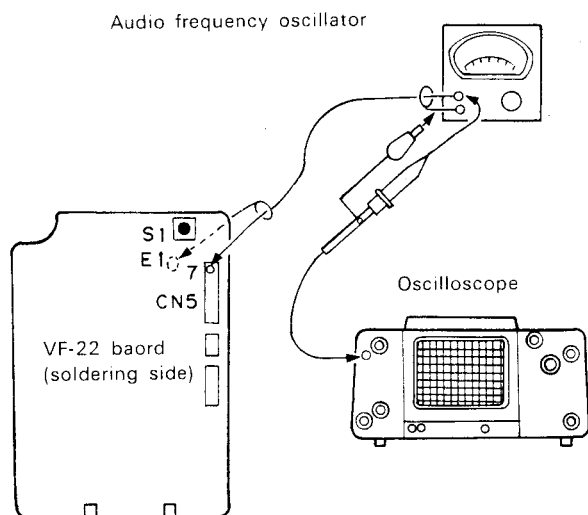


VF-22 board (component side)

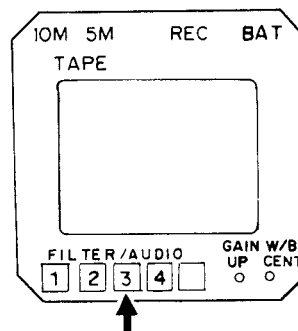
4-3-55. Audio Level Adjustment

Note: This adjustment can non be performed when a VTR (BVV-1A) is attached. So perform this adjustment with a BVP-3A alone.

Measuring equipment: Oscilloscope
 Audio frequency oscillator
 Preparations : AUDIO/FILTER switch → "AUTO"
 ZEBRA/TALLY switch → "OFF (center)"
 To be adjusted : RV4/VF-22 board
 Connection :



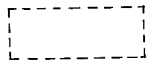
1. Adjust the RV4/VF-22 board so that the 3 (LED) on the indication plate of the viewfinder lights up slightly when the sine-wave, 1 KHz, 0.332 Vp-p is fed to pin 7 of CN5, and 3 (LED) goes off when the sine-wave level is reduced to 0.328 Vp-p.




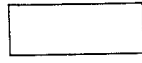
4-4. PARTIAL ADJUSTMENT

In this section, adjustment items requiring adjustment quite frequently are selected. When performing adjustments, items which must be checked in advance and those which have to be performed later after the adjustments are shown in the flow charts.

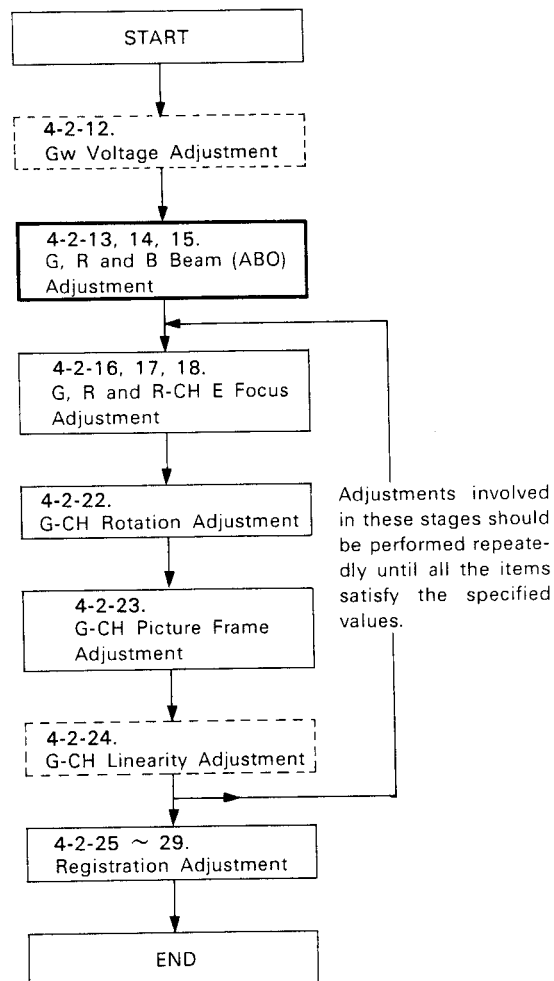
Be sure to make adjustments in accordance with the flow charts.

 = Items encircled are to be confirmed and if they do not meet the specified values, further adjustments should be performed.

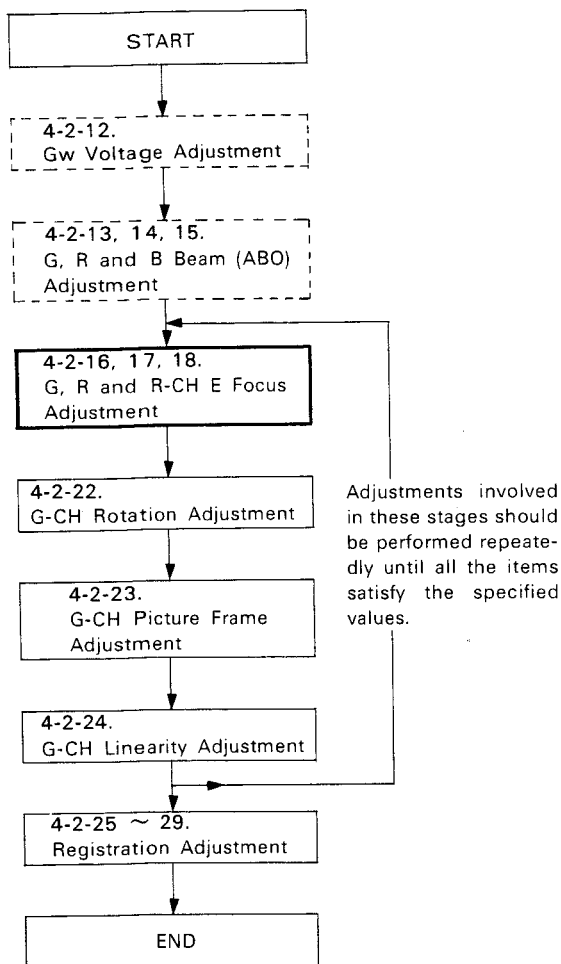
 = Items encircled are the required adjustments.

 = Items which further adjustments must be performed even after the necessary adjustments encircled with the bold-faced frame have been achieved.

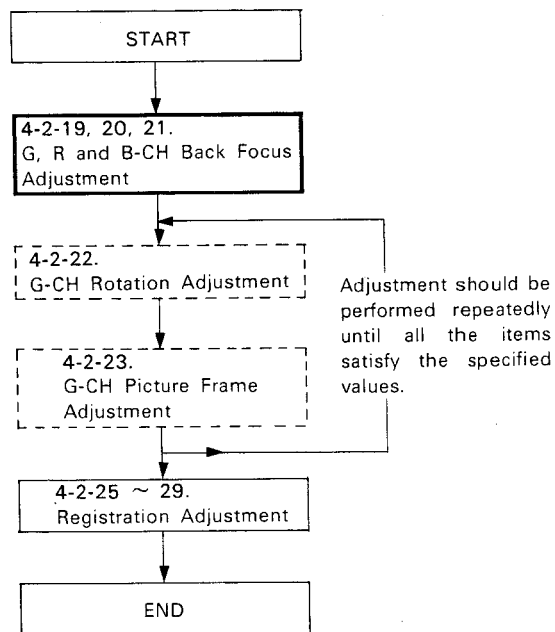
BEAM • ABO adjustment



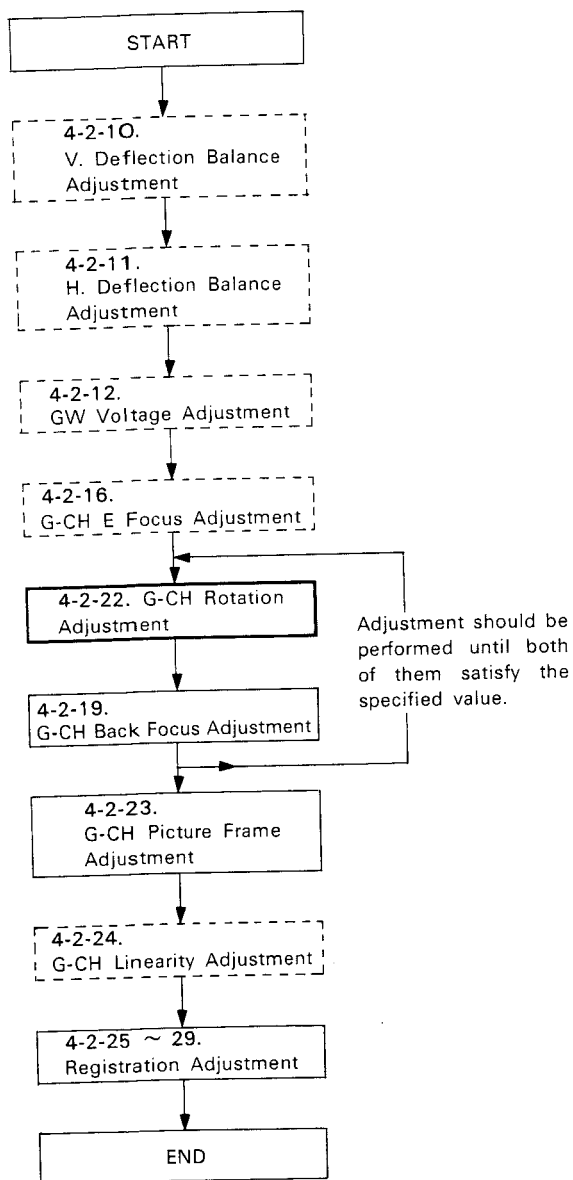
ELECTRICAL FOCUS adjustment



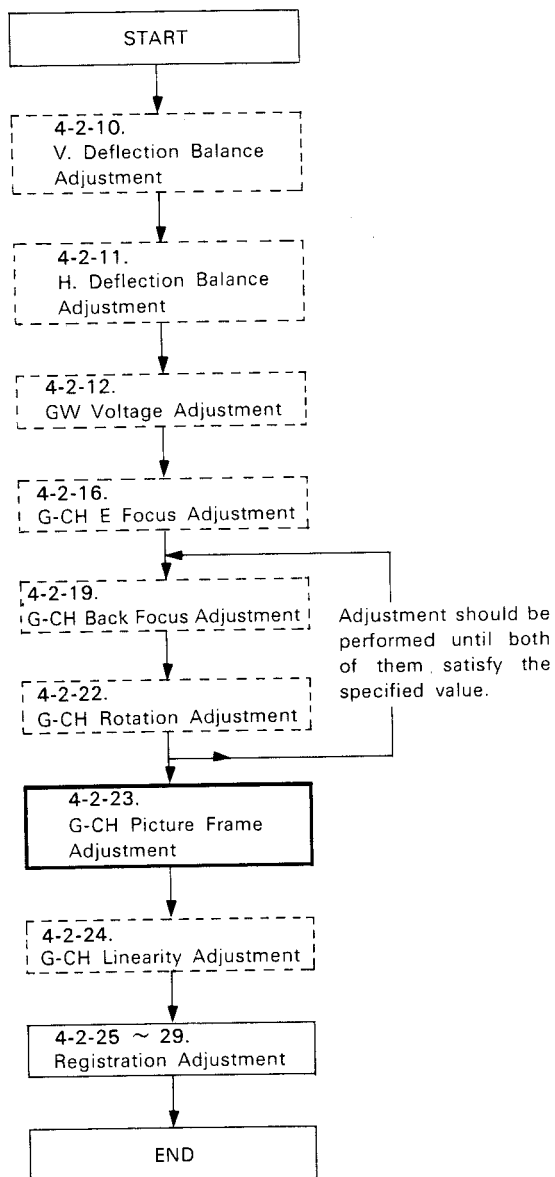
MECHANICAL BACK FOCUS adjustment



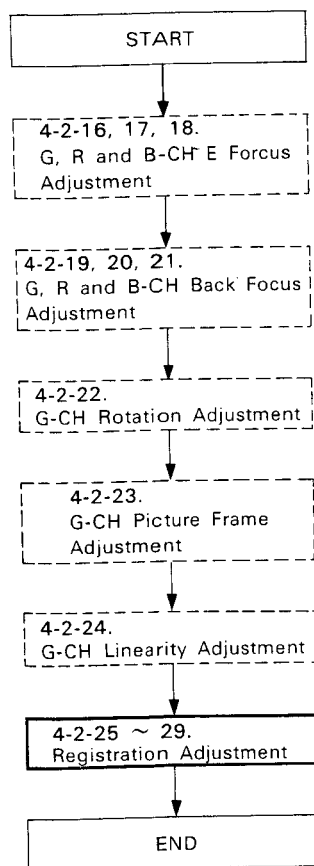
G-CH ROTATION adjustment



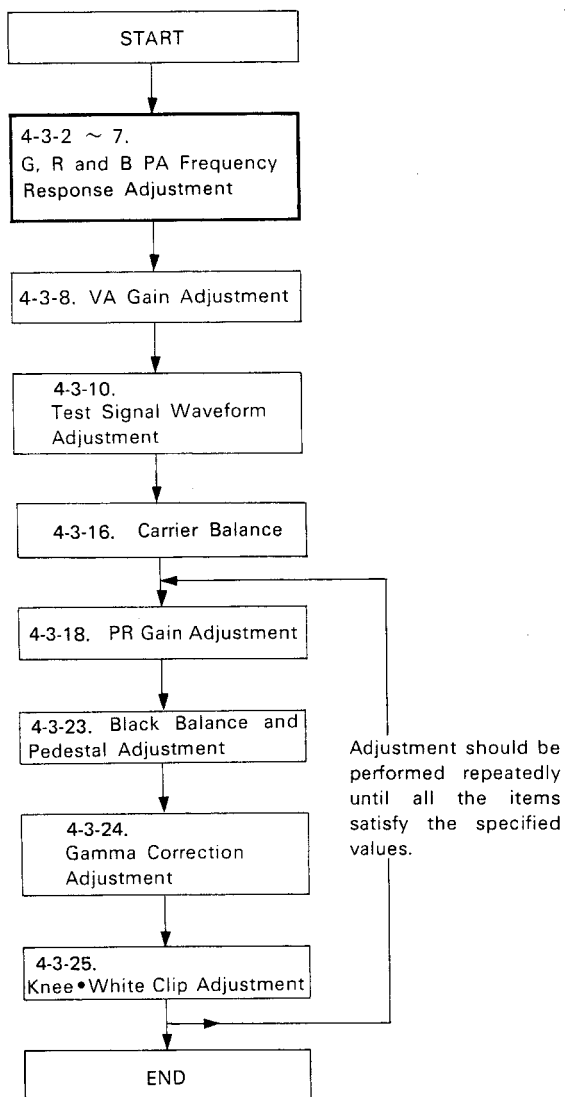
G-CH PICTURE SIZE adjustment



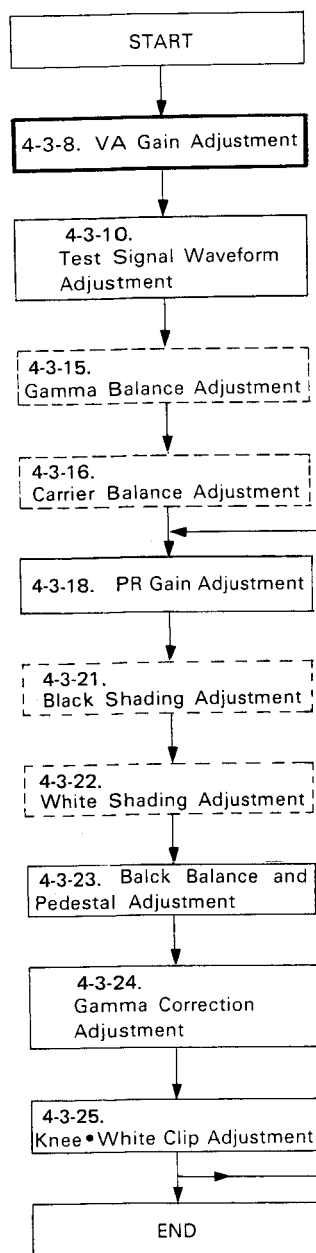
REGISTRATION adjustment



PRE-AMP FREQUENCY RESPONSE adjustment

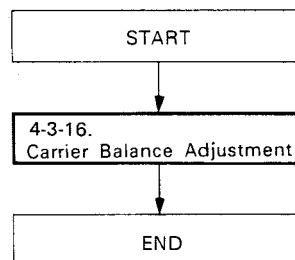


WHITE BALANCE (PRESET) adjustment

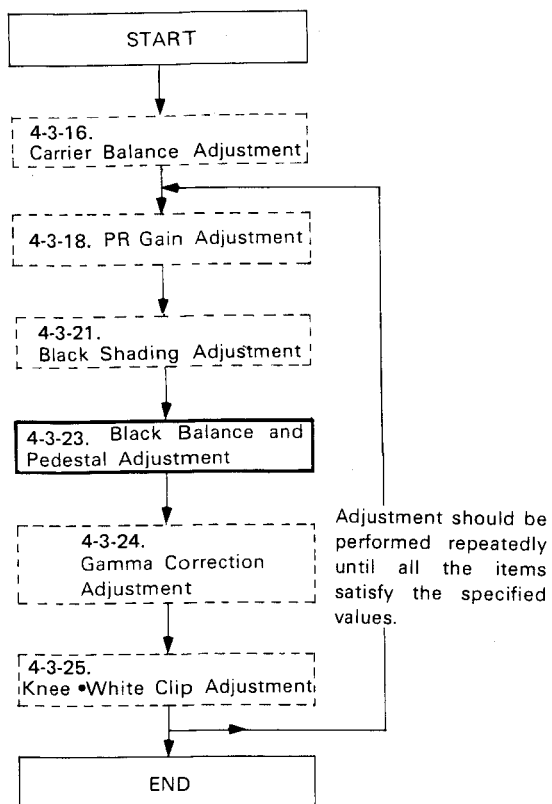


Adjustment should be performed repeatedly until all the items satisfy the specified values.

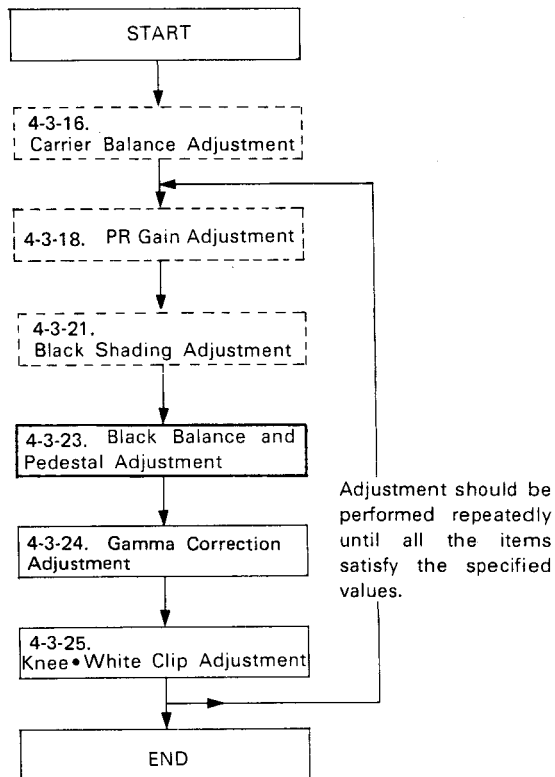
CARRIER BALANCE adjustment



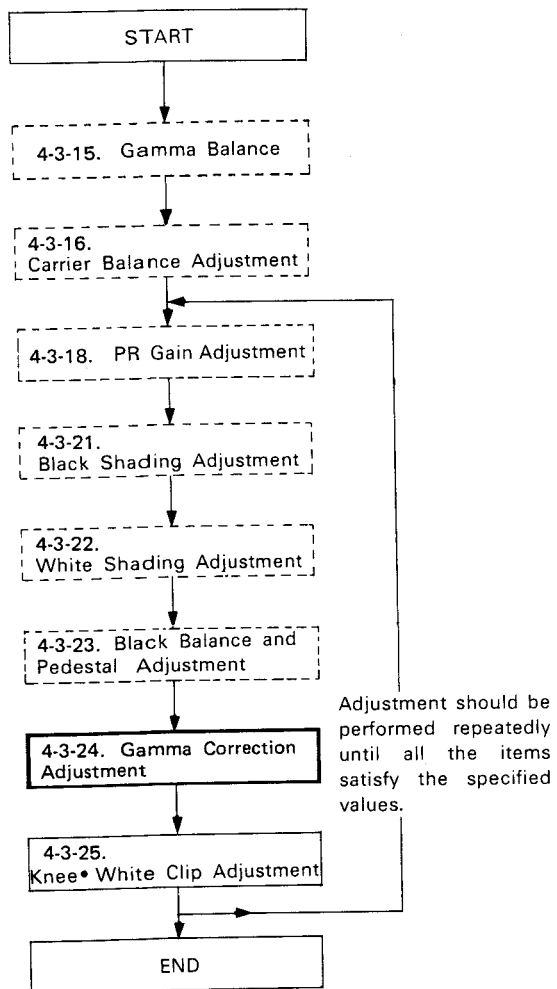
BLACK BALANCE adjustment



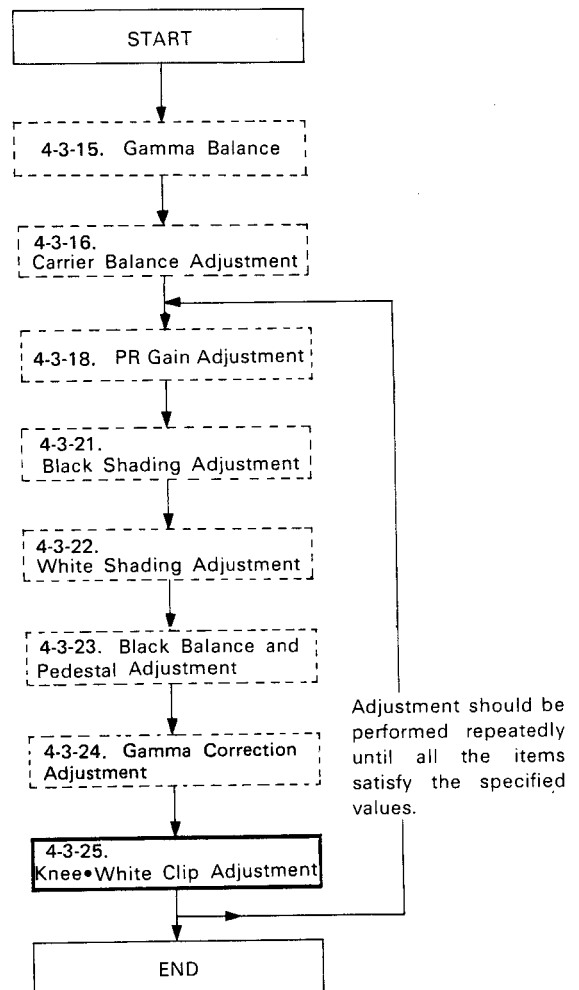
PEDESTAL adjustment



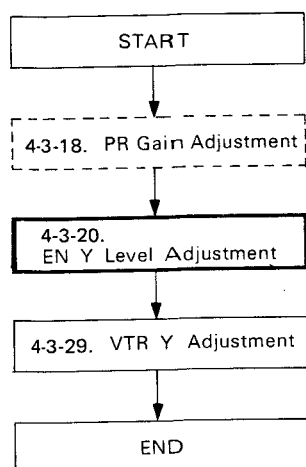
GAMMA adjustment



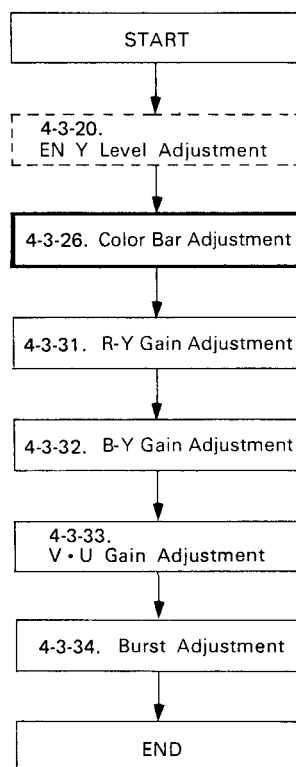
KNEE • WHITE CLIPE adjustment



SETUP • Y LEVEL adjustment

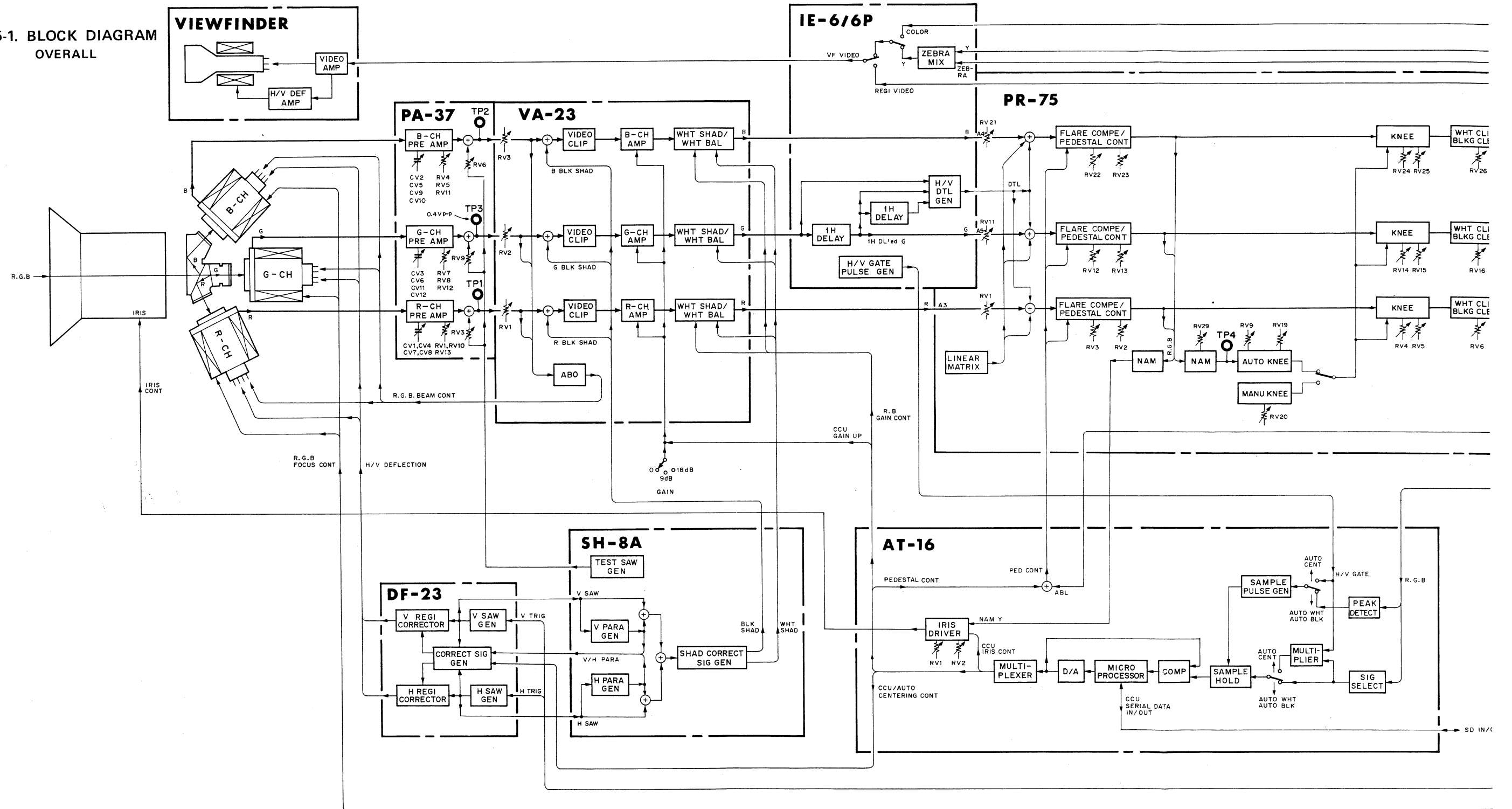


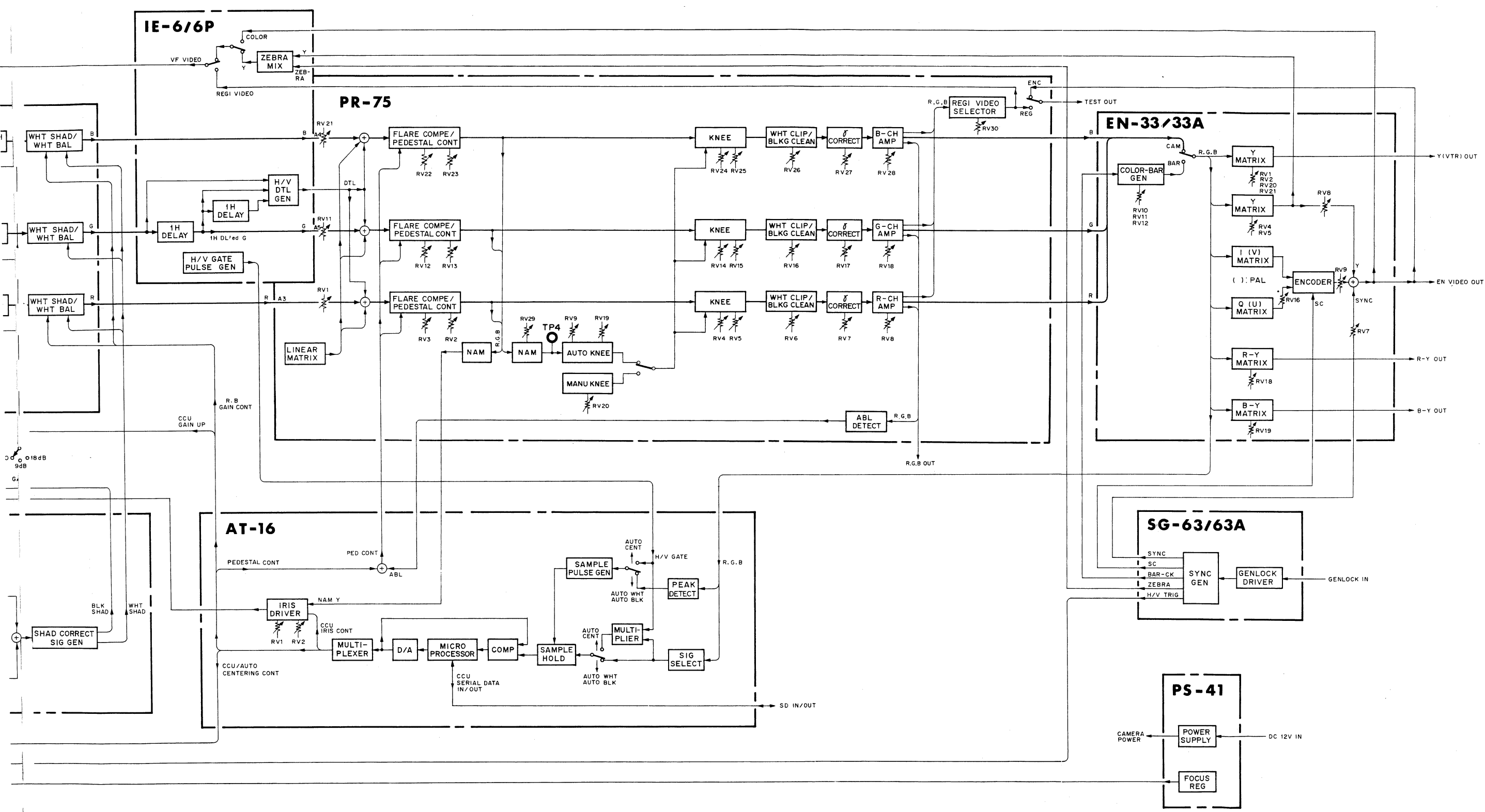
COLOR-BAR adjustment



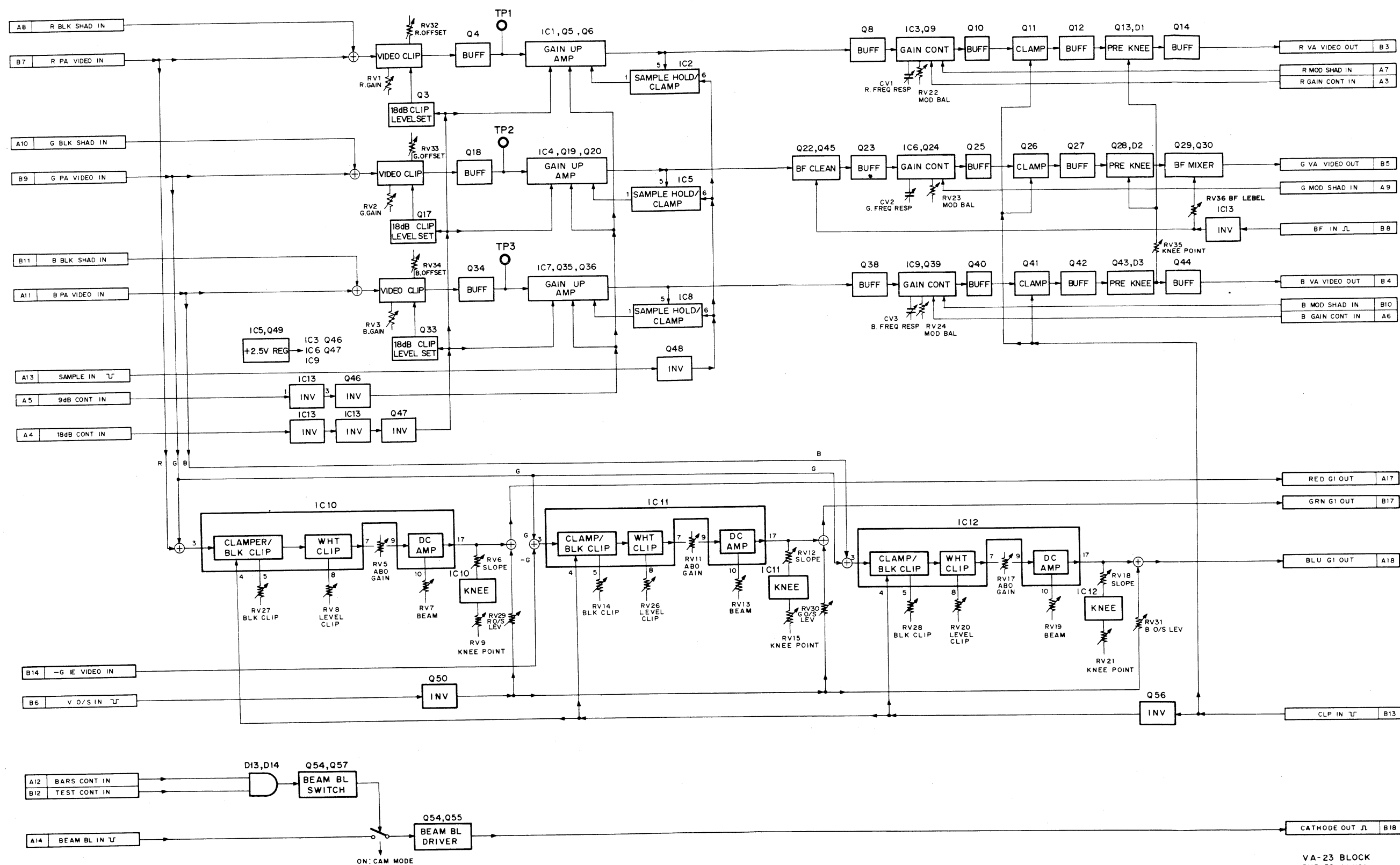
SECTION 5 DIAGRAM

5-1. BLOCK DIAGRAM
OVERALL



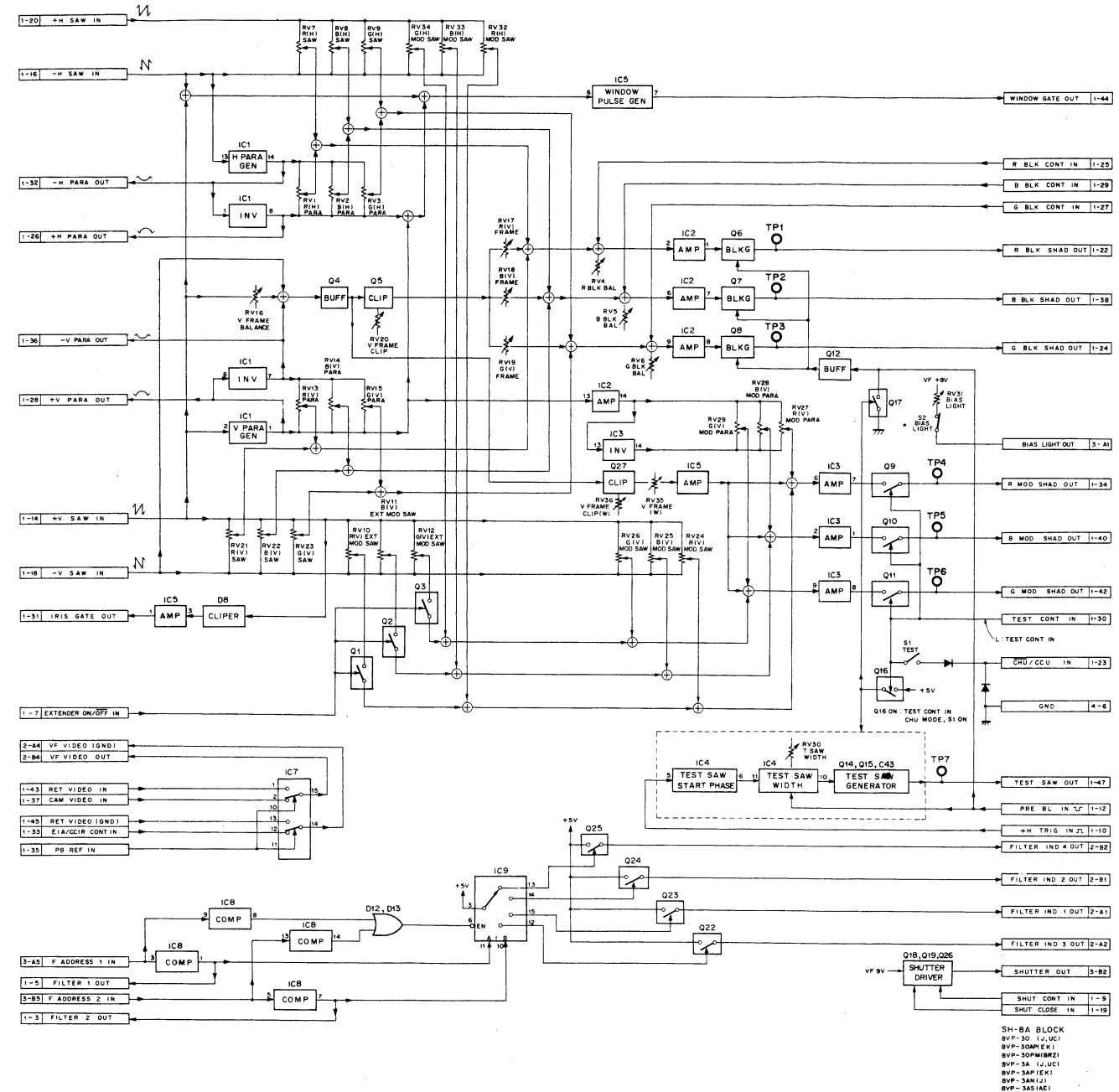
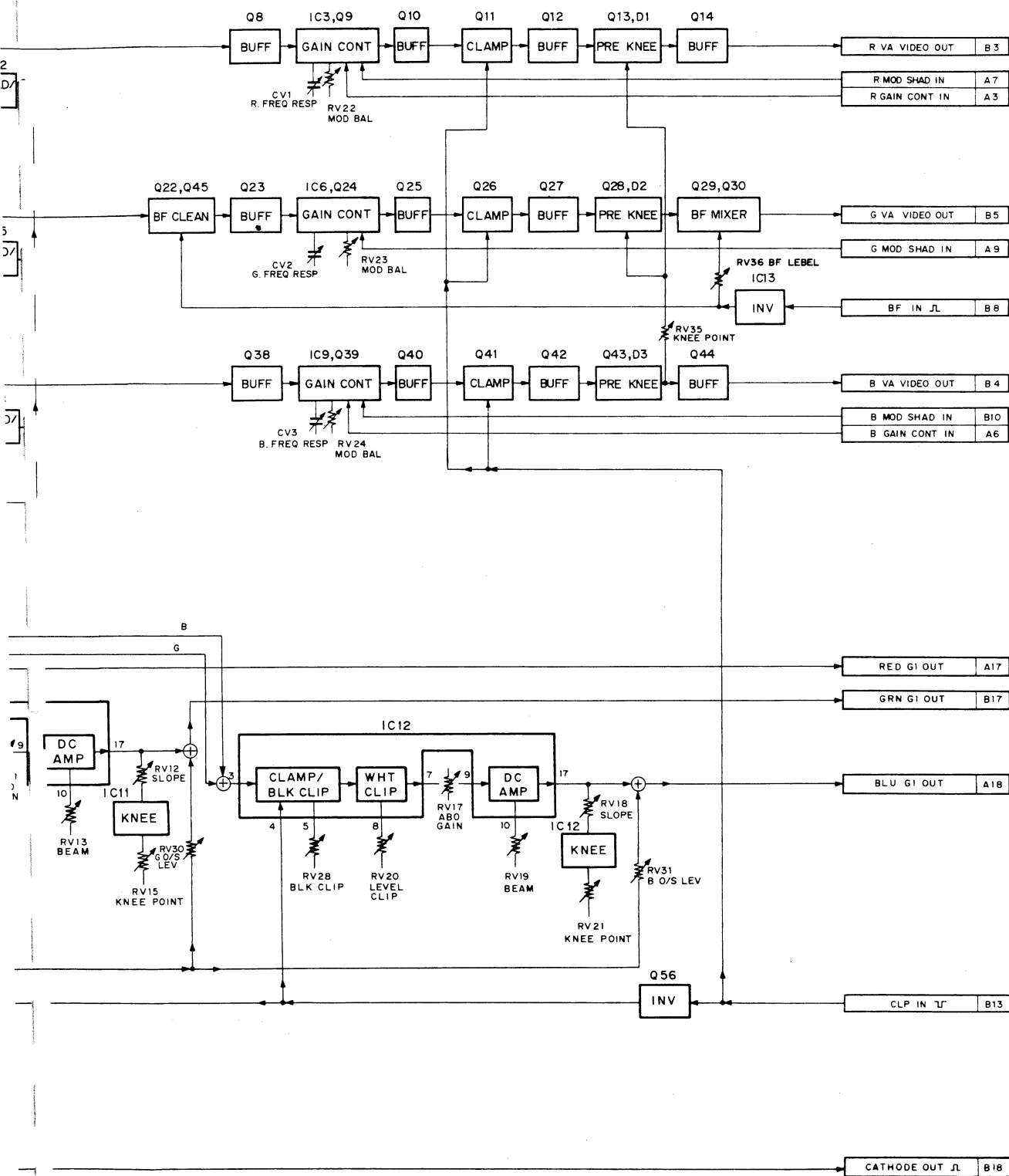


VA-23 BOARD

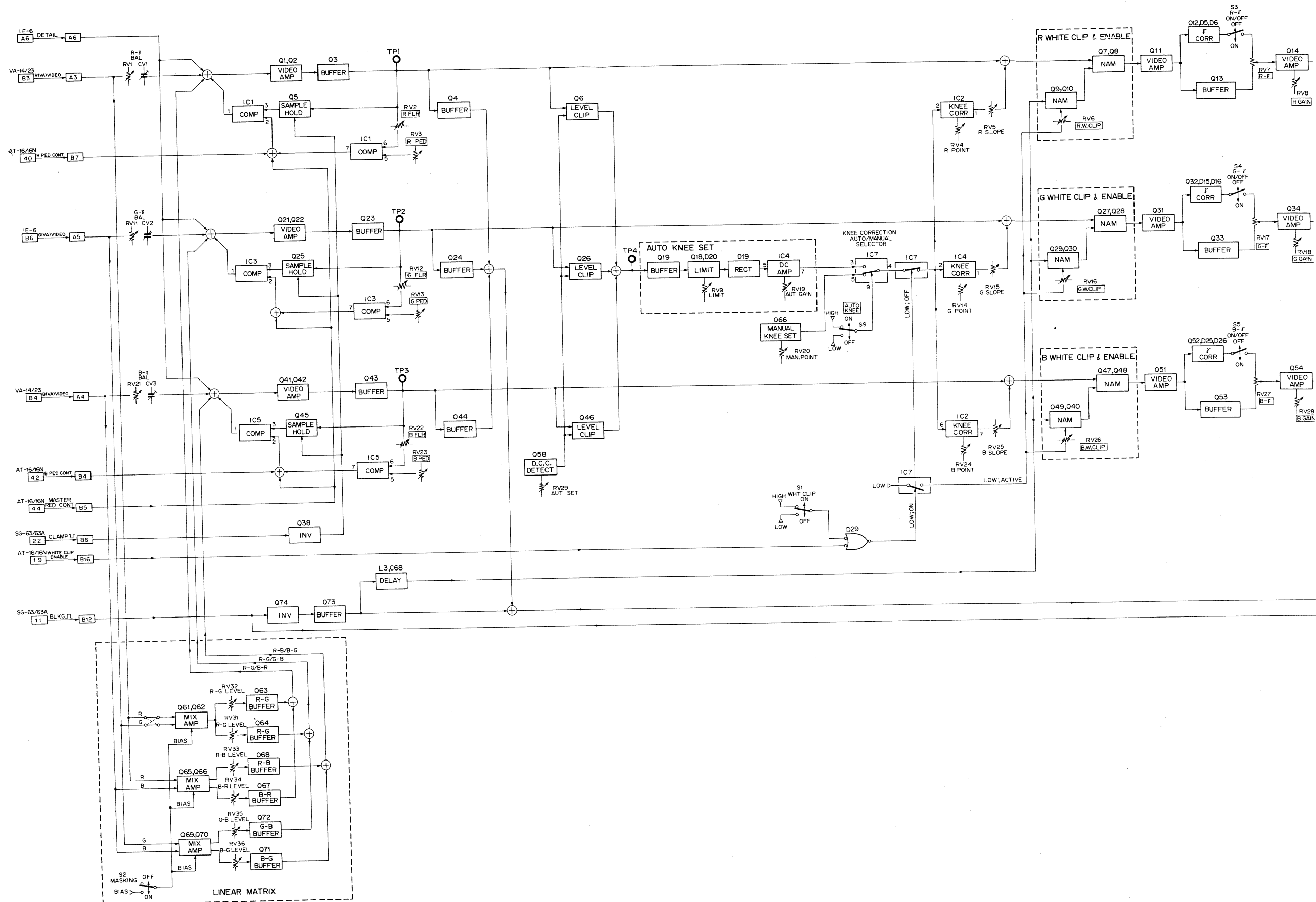


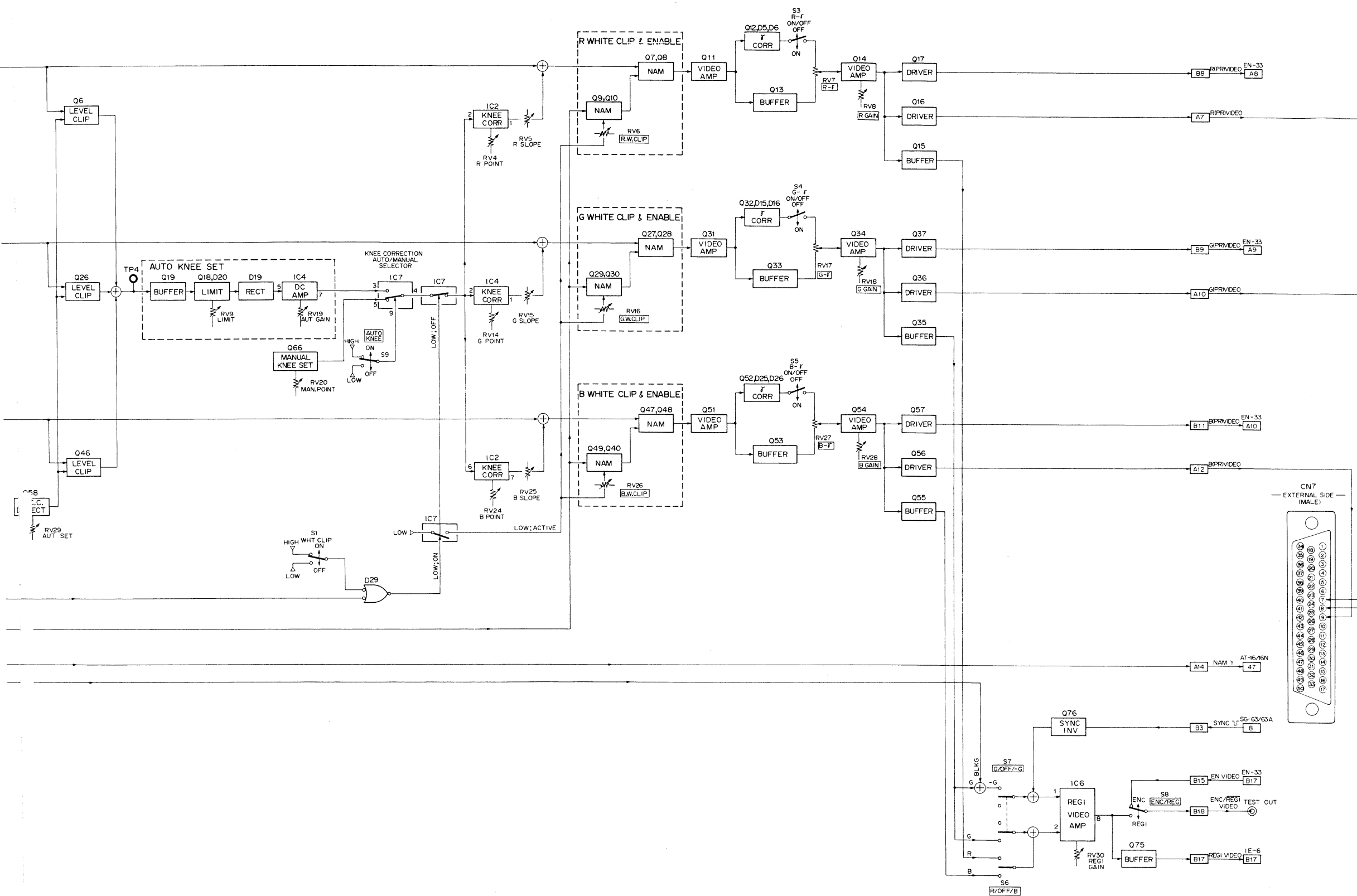
VA-23 BLOCK
 BVP-30 (JUC)
 BVP-30AP (EK)
 BVP-30PM (BRZ)

SH-8A BOARD



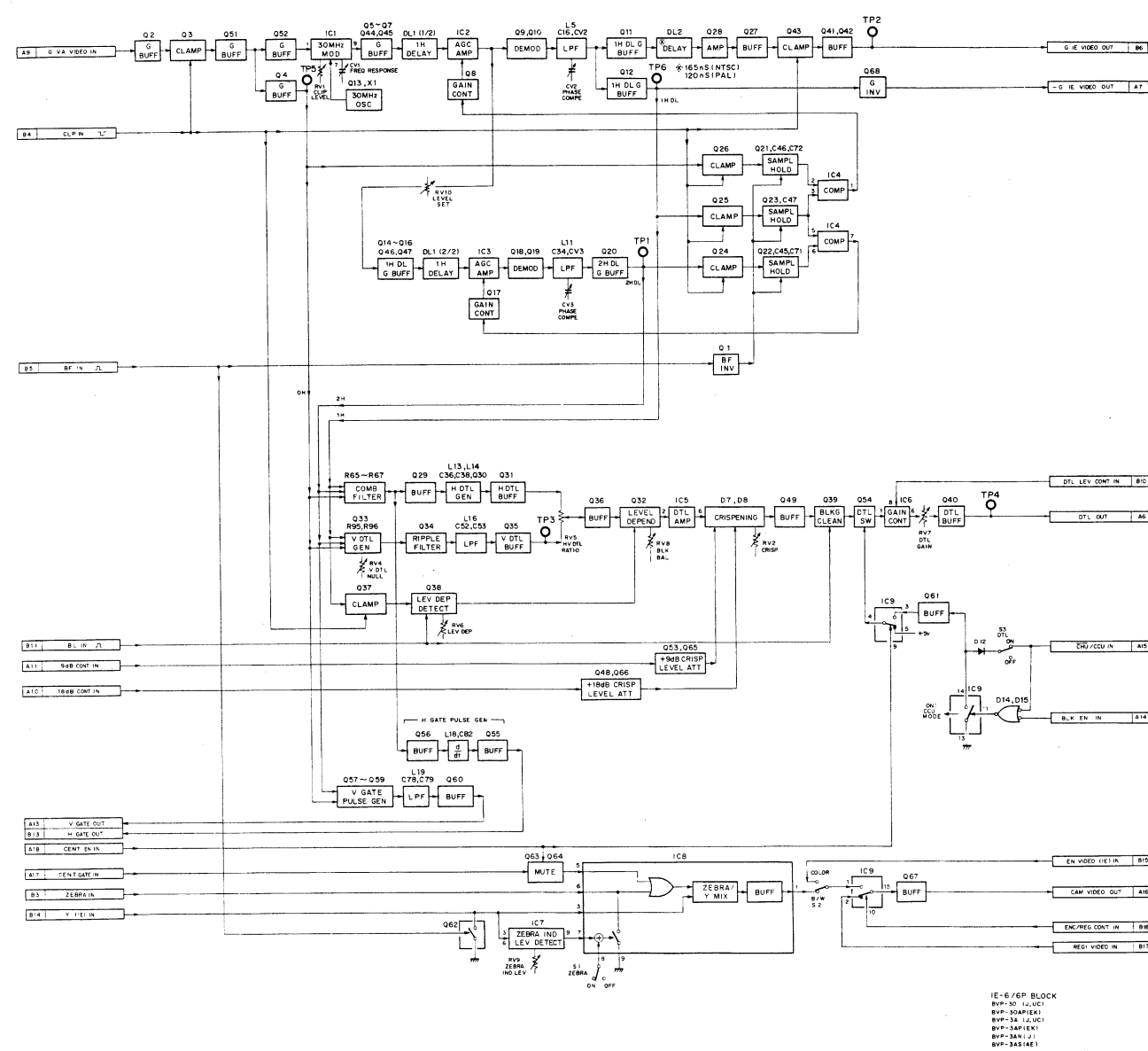
PR-75 BOARD



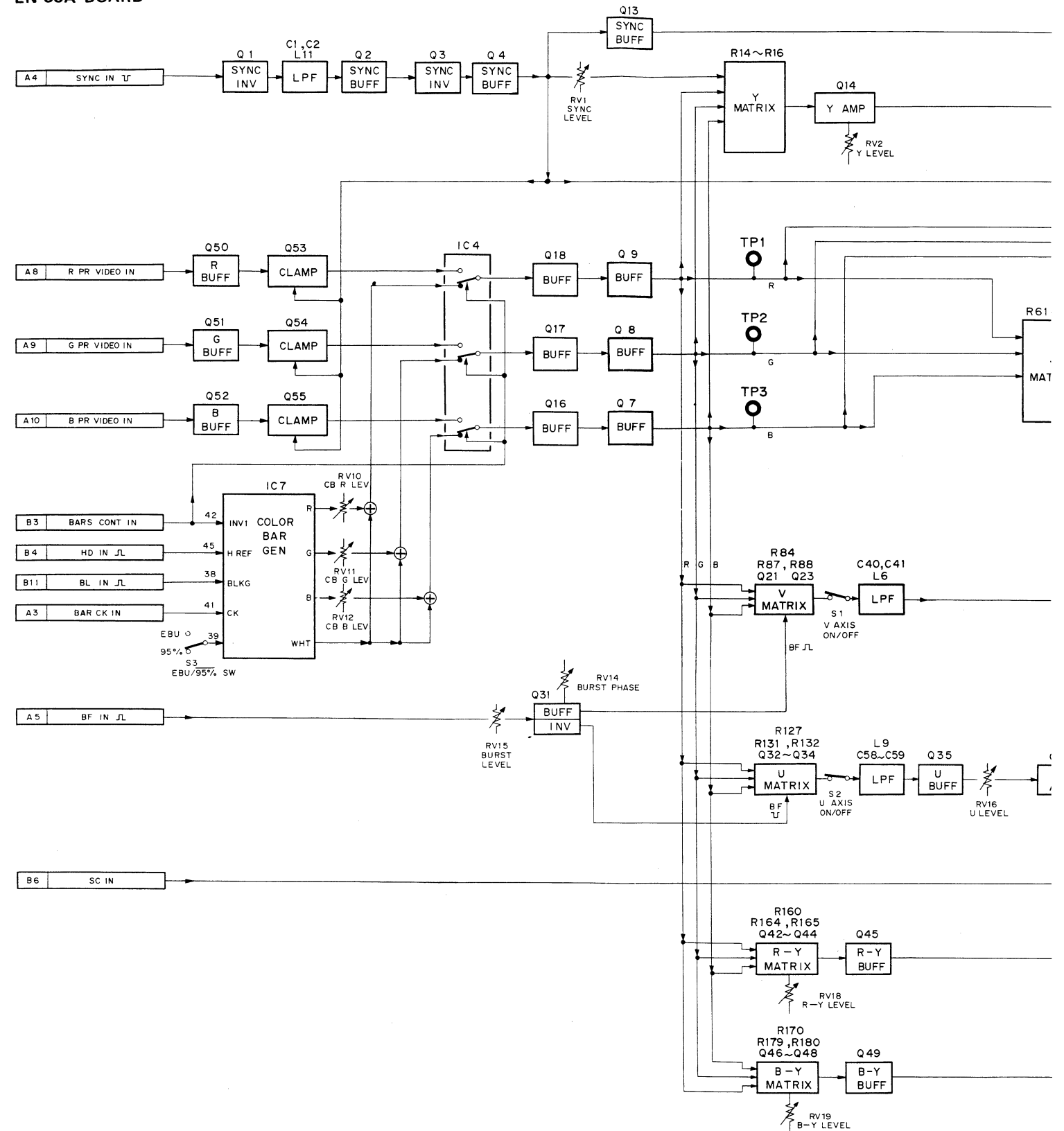


PR-75 BLOCK
 BVP-3A (J,UC)
 BVP-3AP (EK)
 BVP-3AN (J)
 BVP-3AS (AE)
 BVP-30 (J,UC)
 BVP-30AP (EK)

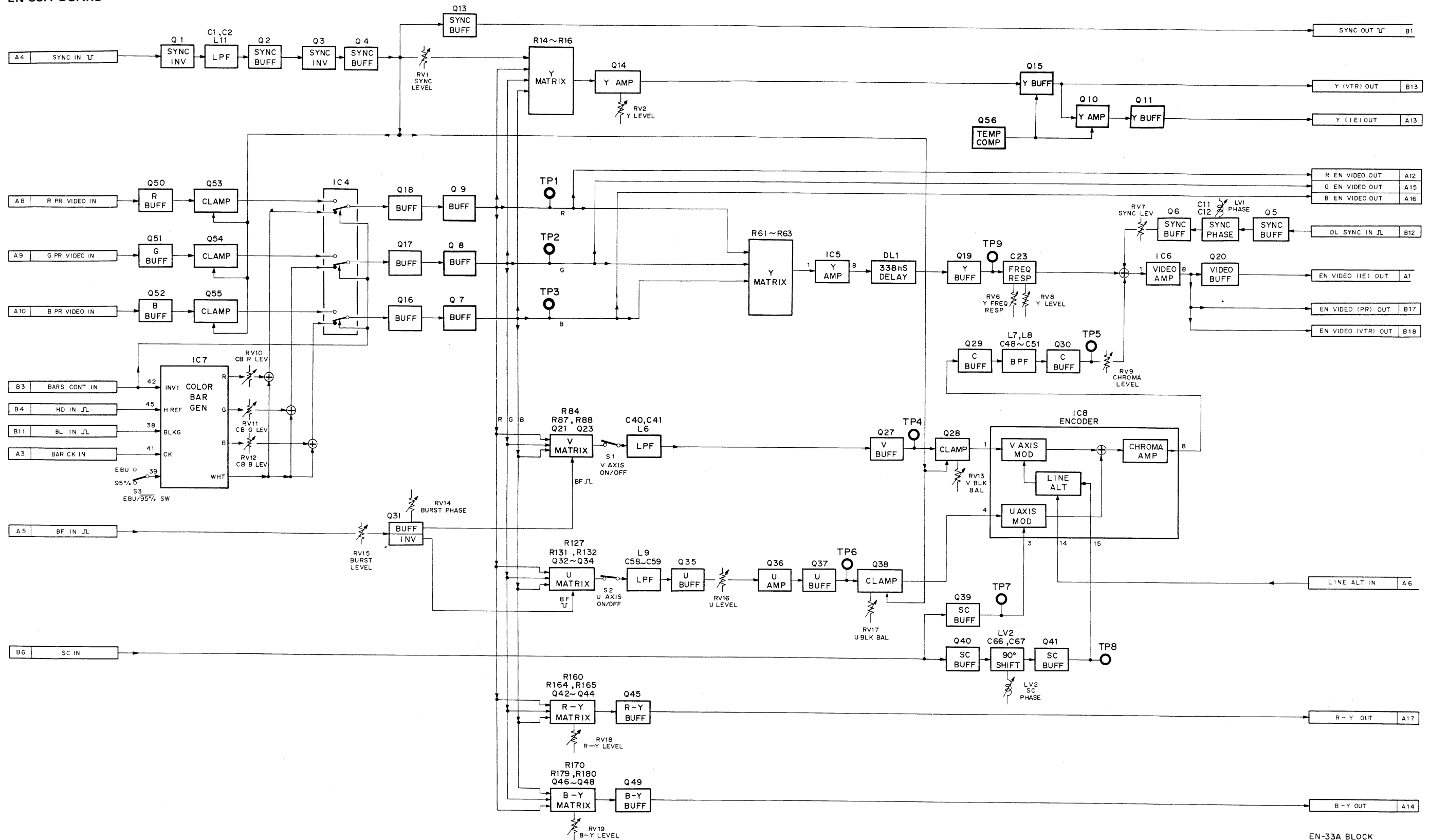
IE-6P BOARD



EN-33A BOARD

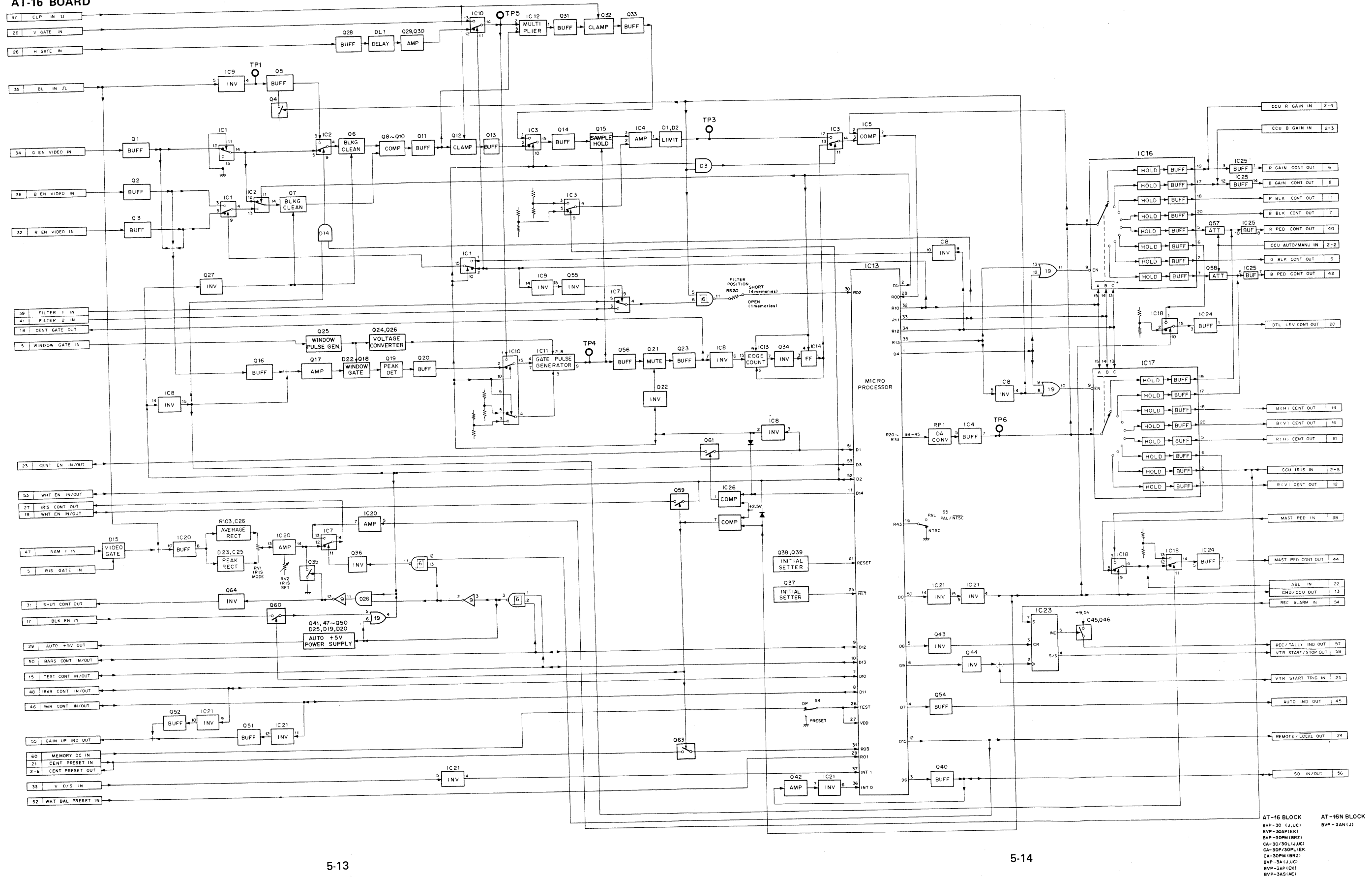


EN-33A BOARD



EN-33A BLOCK
BVP-30AP(EK)
BVP-3AP(EK)

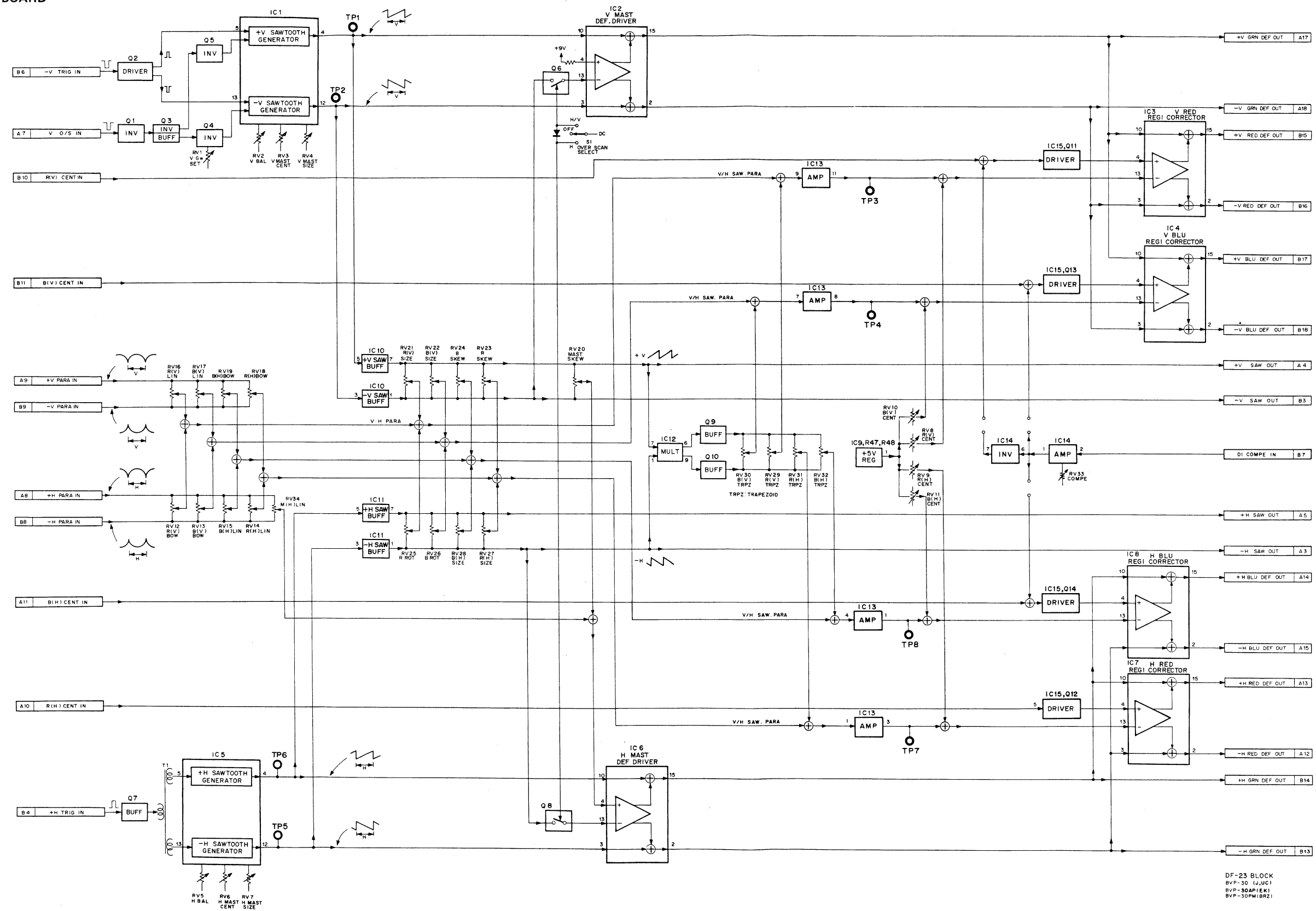
AT-16 BOARD



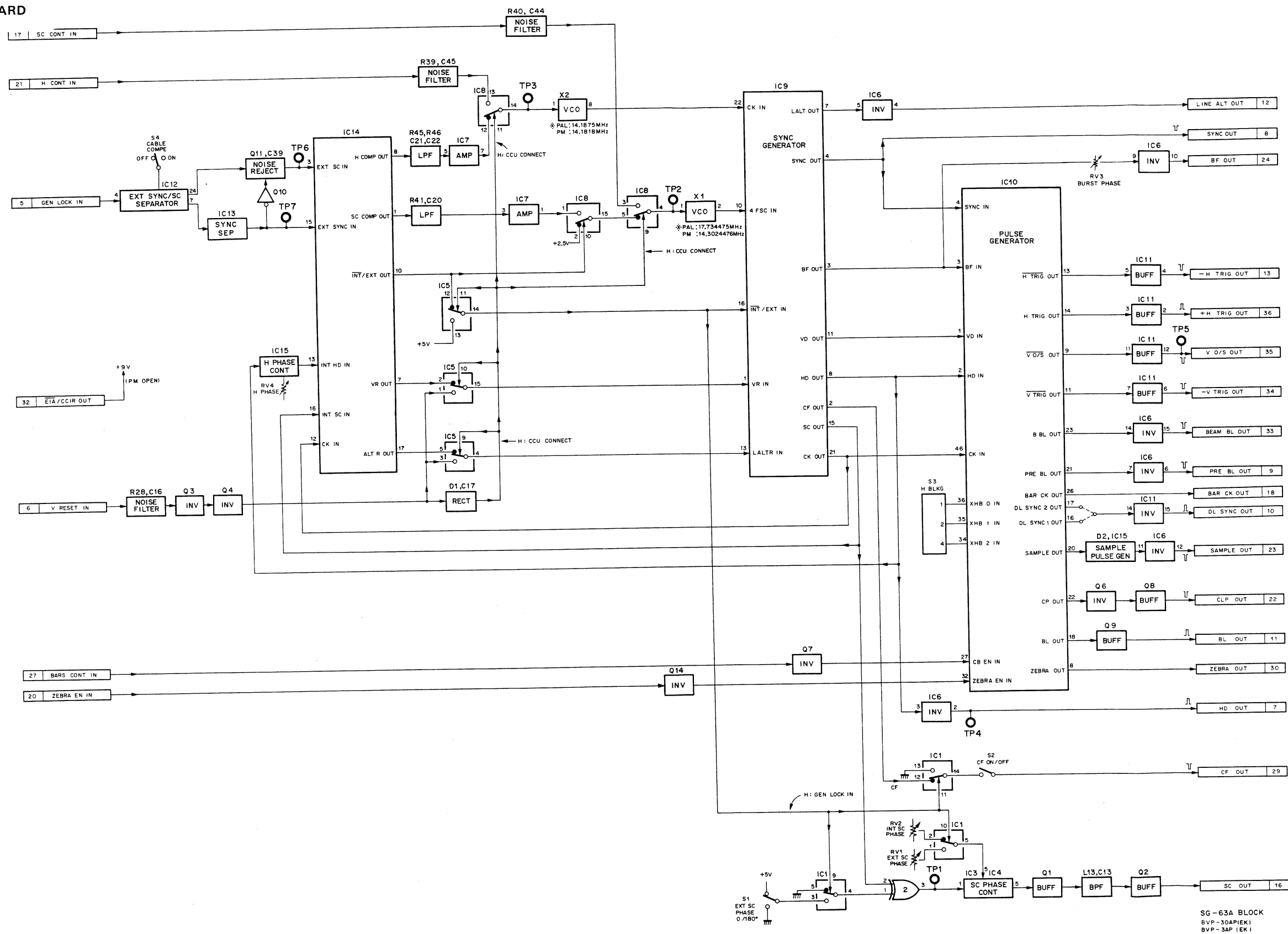
AT-16 BLOCK
BVP-30 (1,UC)
BVP-30A (1,UC)
BVP-30PM (BRZ)
CA-30/30L (1,UC)
CA-30P/30PIEK
CA-30PM (BRZ)
BVP-3A (1,UC)
BVP-3AP (1,UC)
BVP-3AS (1,UC)

AT-16N BLOCK
BVP-3AN (1,UC)

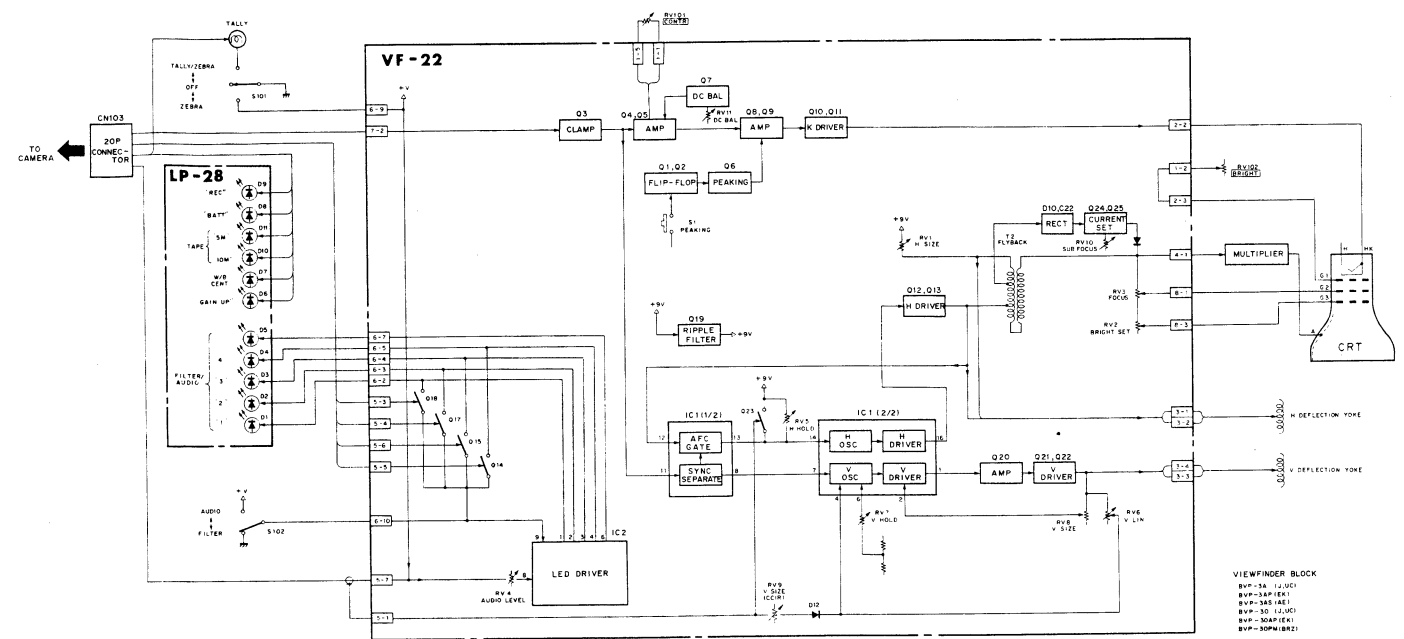
DF-23 BOARD



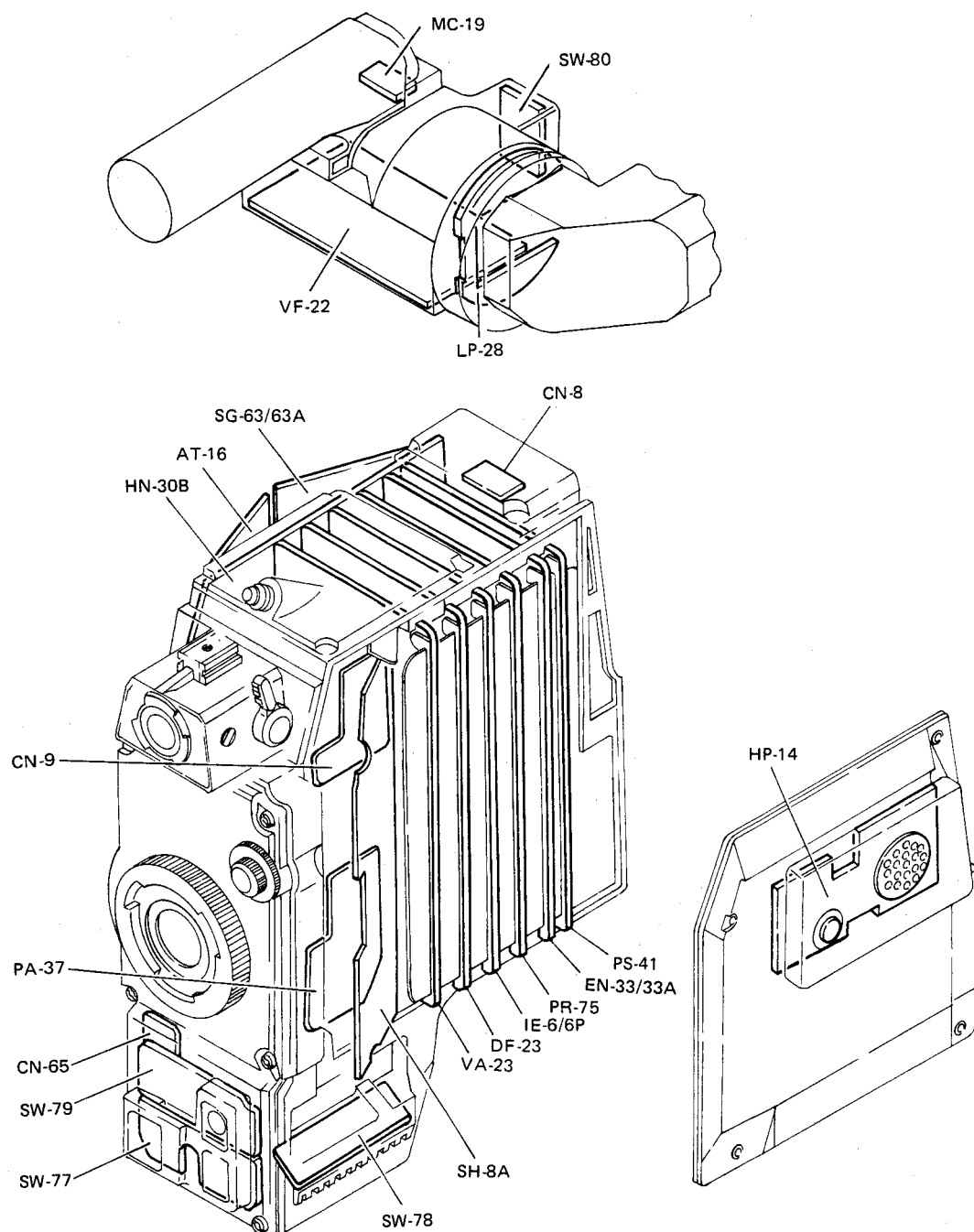
SG-63A BOARD



VIEWFINDER



5-2. MOUNTING DIAGRAM AND SCHEMATIC DIAGRAM LOCATION OF MOUNTED CIRCUIT BOARD



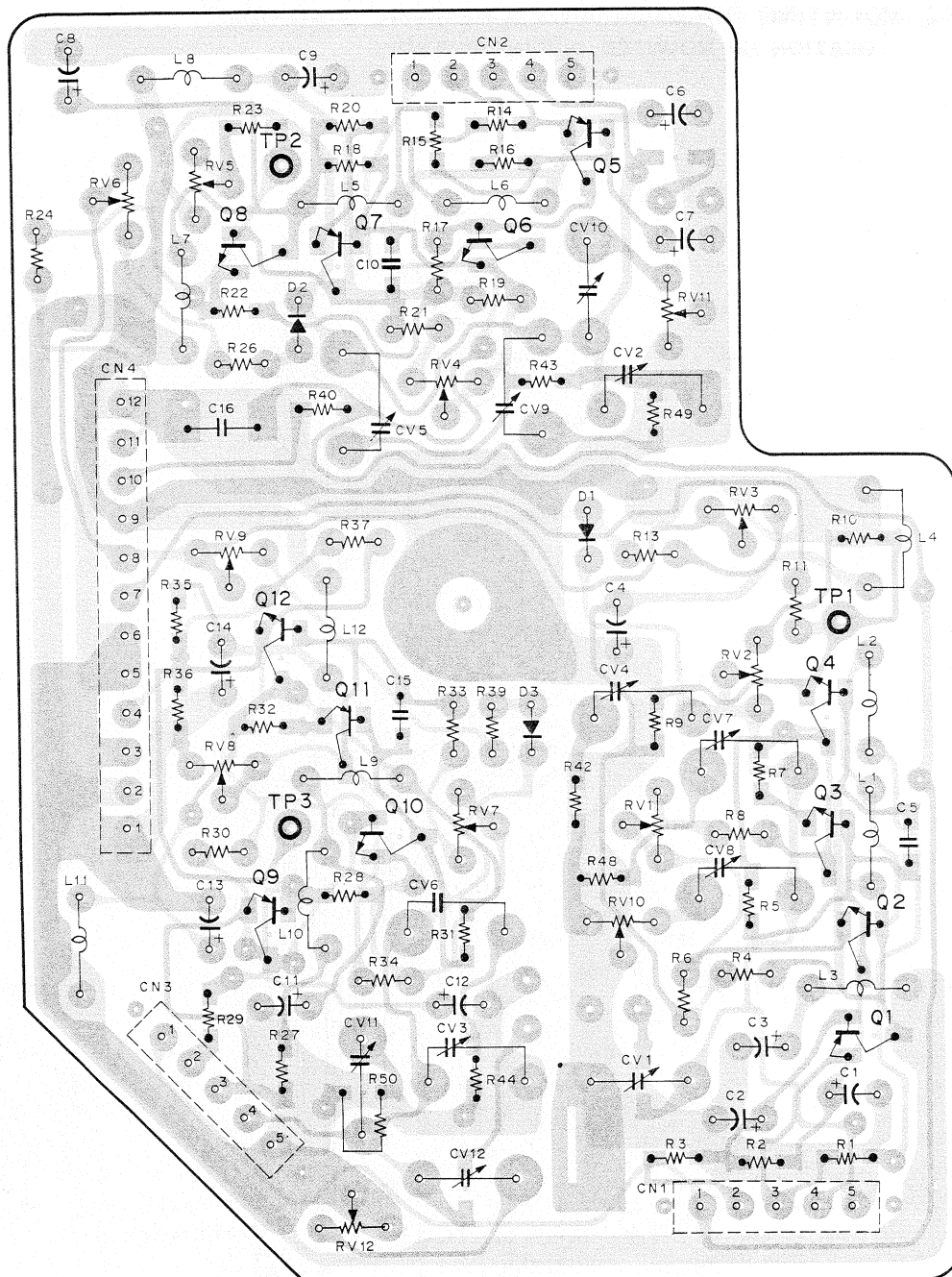
PA-37, PP-13

Parts. No. 1-612-380-13

PA-37 BOARD

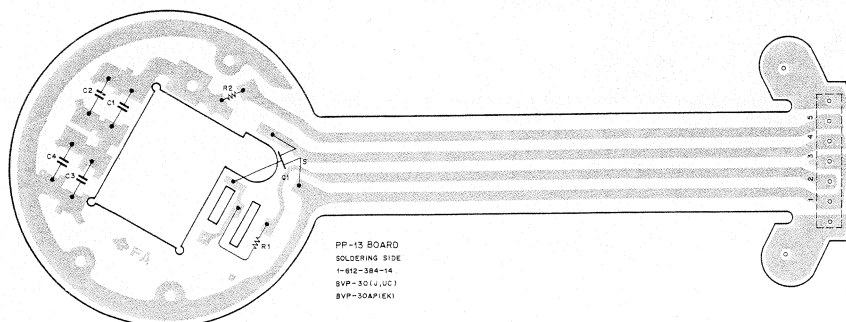
PRE AMP

— SOLDERING SIDE —



PP-13 BOARD

— SOLDERING SIDE —



PA-37 BOARD

SOLDERING SIDE

1-612-380-13

BVP-30 (J,UC)

BVP-30AP(EK)

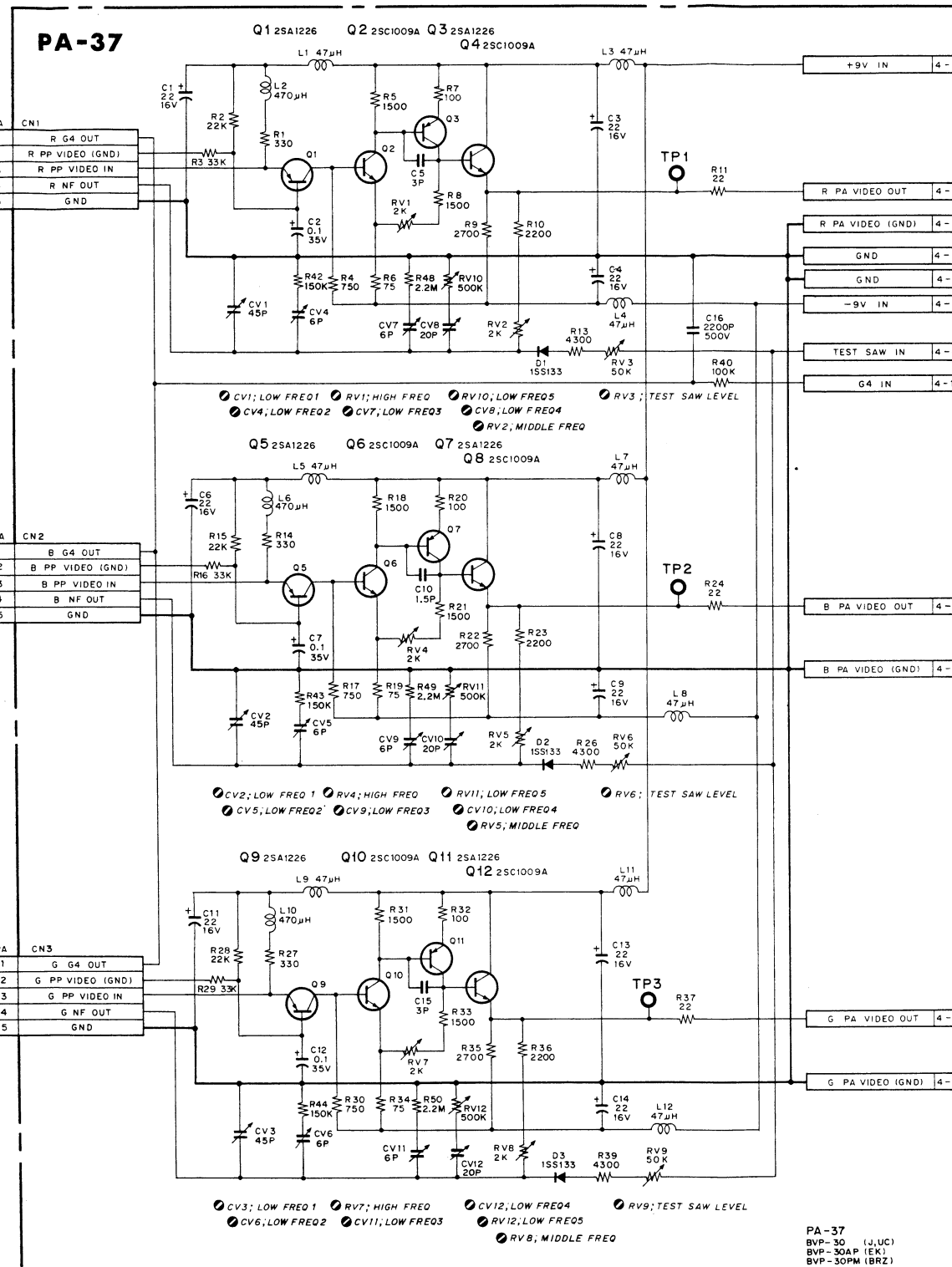
BVP-30PM(BRZ)

BVP-3A (J,UC)

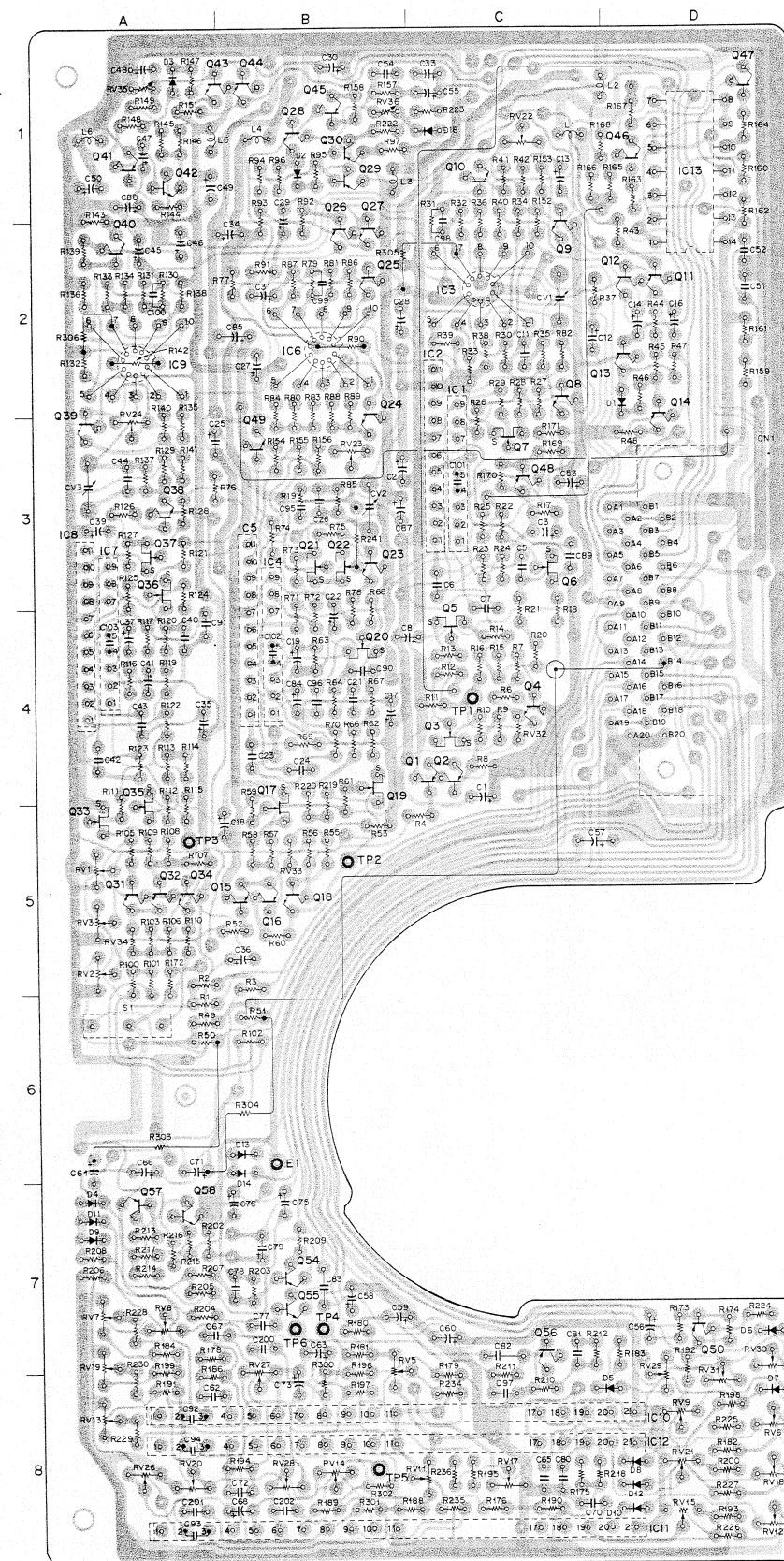
BVP-3AN(J)

BVP-3AP(EK)

BVP-3AS(AE)



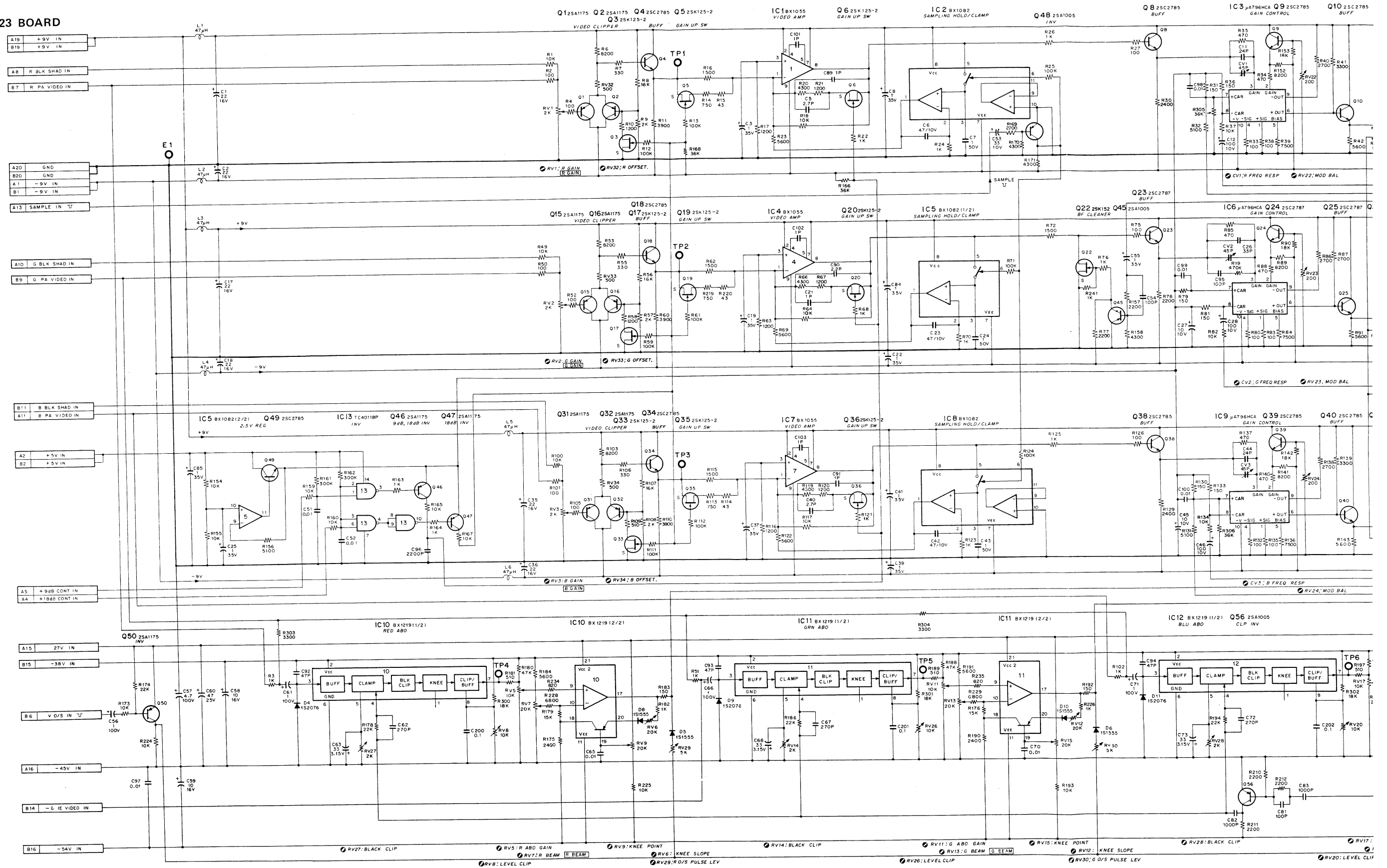
VA-23 BOARD
VIDEO AMP
ABO
— SOLDERING SIDE —

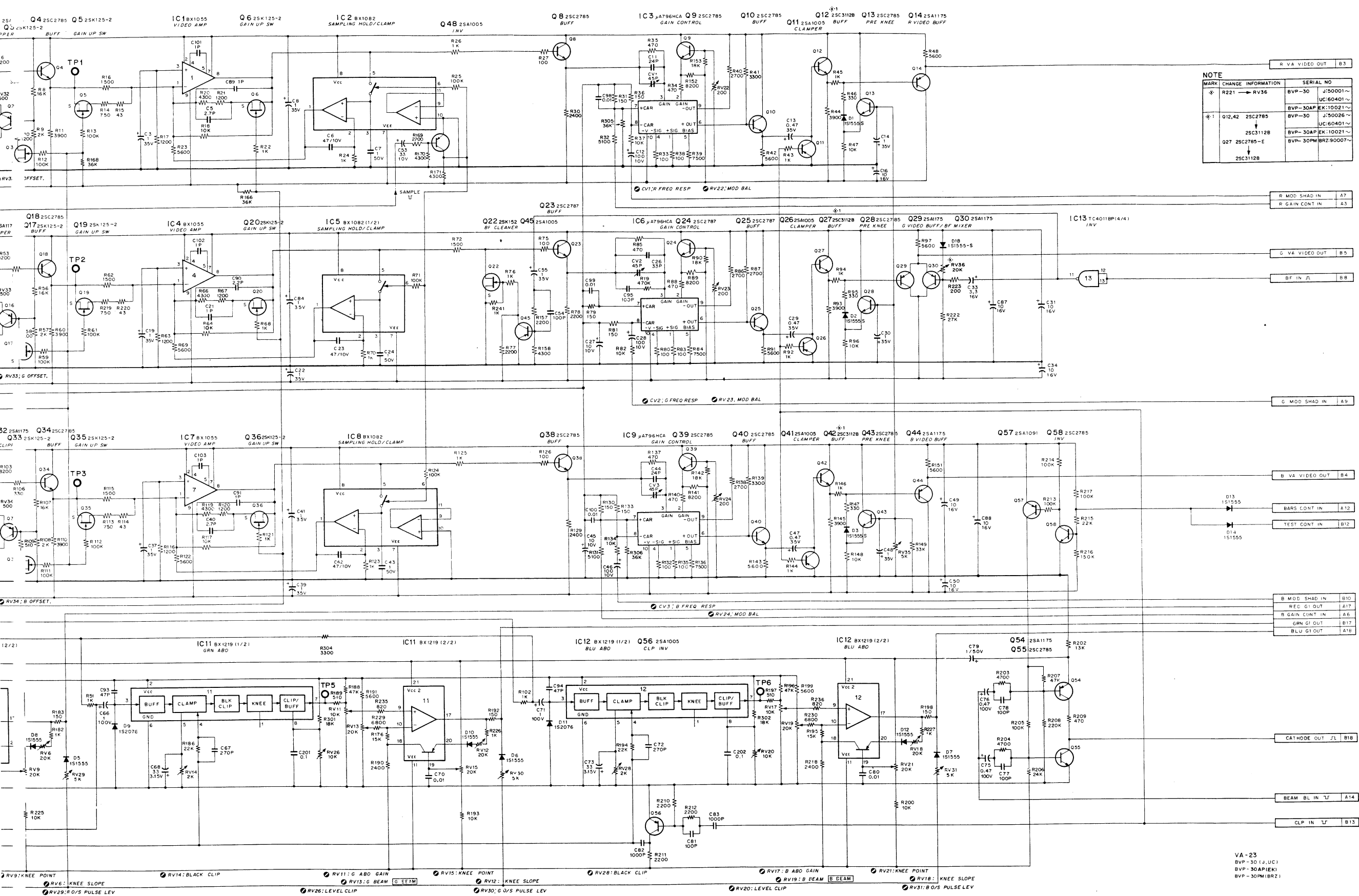


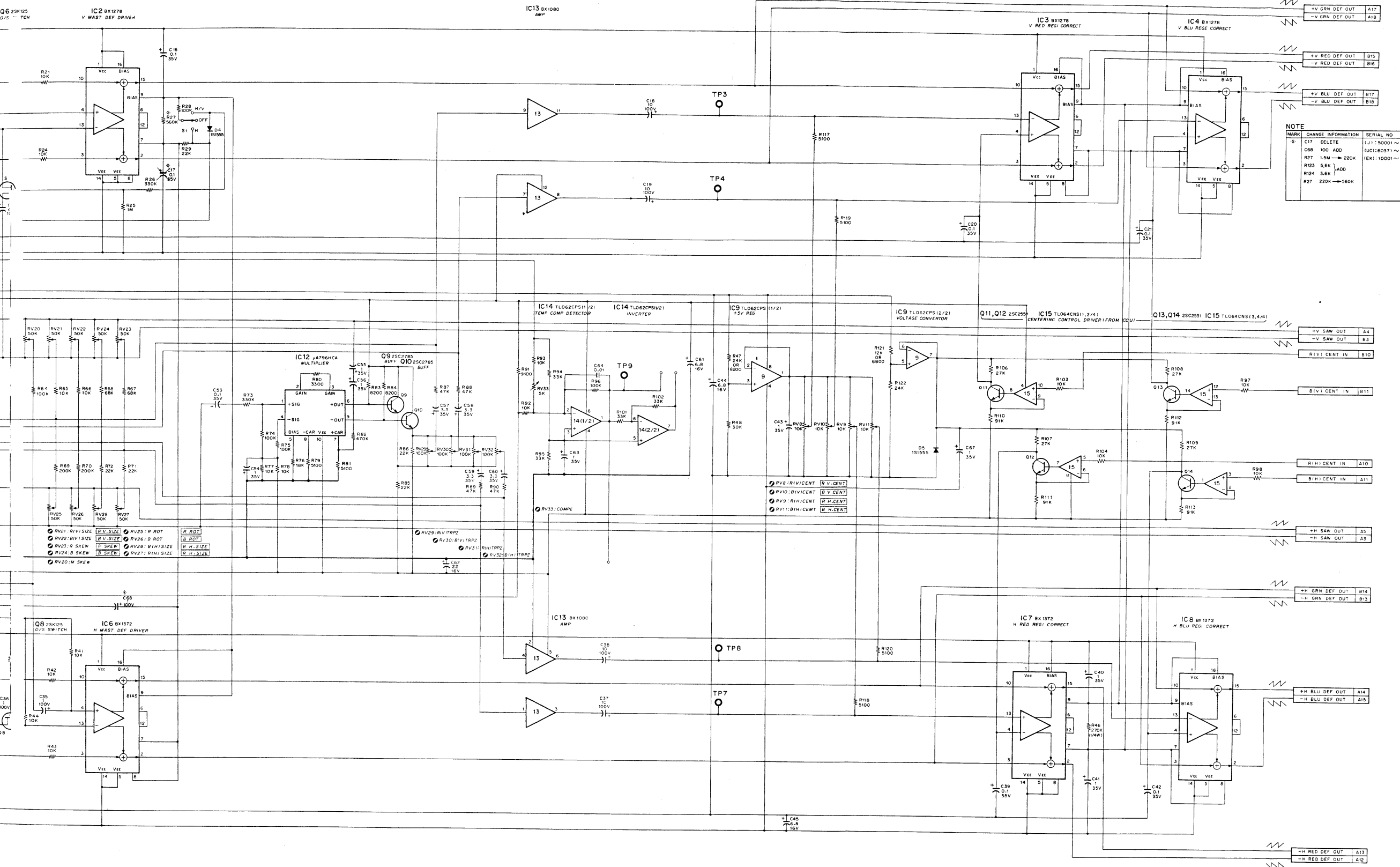
| | |
|----------|----------|
| CN1 D-3 | RV1 A-5 |
| CV1 C-2 | RV2 A-5 |
| CV2 B-3 | RV3 A-5 |
| CV3 A-3 | RV4 B-7 |
| D1 D-2 | RV5 A-7 |
| D2 B-1 | RV6 D-8 |
| D3 A-1 | RV7 A-7 |
| D4 A-7 | RV8 A-7 |
| D5 D-7 | RV9 D-8 |
| D6 D-7 | RV10 A-8 |
| D7 D-8 | RV11 B-8 |
| D8 D-8 | RV12 D-8 |
| D9 A-7 | RV13 A-8 |
| D10 D-8 | RV14 B-8 |
| D11 A-7 | RV15 D-8 |
| D12 D-8 | RV16 C-8 |
| D13 B-6 | RV17 C-8 |
| D14 B-6 | RV18 D-8 |
| D18 C-1 | RV19 A-7 |
| E1 B-6 | RV20 A-8 |
| IC1 C-3 | RV21 D-8 |
| IC2 C-3 | RV22 C-1 |
| IC3 C-2 | RV23 B-3 |
| IC4 B-4 | RV24 A-3 |
| IC5 B-4 | RV25 A-8 |
| IC6 B-2 | RV26 A-8 |
| IC7 A-4 | RV27 B-7 |
| IC8 A-4 | RV28 B-8 |
| IC9 A-2 | RV29 D-7 |
| IC10 B-8 | RV30 D-7 |
| IC11 B-8 | RV31 D-8 |
| IC12 B-8 | RV32 C-4 |
| IC13 D-1 | RV33 B-5 |
| Q1 C-4 | RV34 A-5 |
| Q2 C-4 | RV35 A-1 |
| Q3 C-4 | RV36 B-1 |
| Q4 C-4 | TP1 C-4 |
| Q5 C-4 | TP2 B-6 |
| Q6 C-2 | TP3 A-5 |
| Q7 C-3 | TP4 D-7 |
| Q8 C-2 | TP5 B-8 |
| Q9 C-2 | TP6 B-7 |
| Q10 C-1 | |
| Q11 D-2 | |
| Q12 D-2 | |
| Q13 D-2 | |
| Q14 D-3 | |
| Q15 B-5 | |
| Q16 B-5 | |
| Q17 B-4 | |
| Q18 B-5 | |
| Q19 B-4 | |
| Q20 B-4 | |
| Q21 B-3 | |
| Q22 B-3 | |
| Q23 B-3 | |
| Q24 B-3 | |
| Q25 B-2 | |
| Q26 B-2 | |
| Q27 B-2 | |
| Q28 B-1 | |
| Q29 B-1 | |
| Q30 B-1 | |
| Q31 A-5 | |
| Q32 A-5 | |
| Q33 A-5 | |
| Q34 A-5 | |
| Q35 A-5 | |
| Q36 A-3 | |
| Q37 A-3 | |
| Q38 A-3 | |
| Q39 A-3 | |
| Q40 A-2 | |
| Q41 A-1 | |
| Q42 A-1 | |
| Q43 A-1 | |
| Q44 B-1 | |
| Q45 B-1 | |
| Q46 D-1 | |
| Q47 D-1 | |
| Q48 C-3 | |
| Q49 B-3 | |
| Q50 D-7 | |
| Q51 B-7 | |
| Q52 B-7 | |
| Q53 A-7 | |
| Q54 A-7 | |
| Q55 C-7 | |
| Q56 A-7 | |

VA-23 BOARD
SOLDERING SIDE
1-612-383-14
RVF-3011, UCI
RVF-3041(EK)

VA-23 BOARD

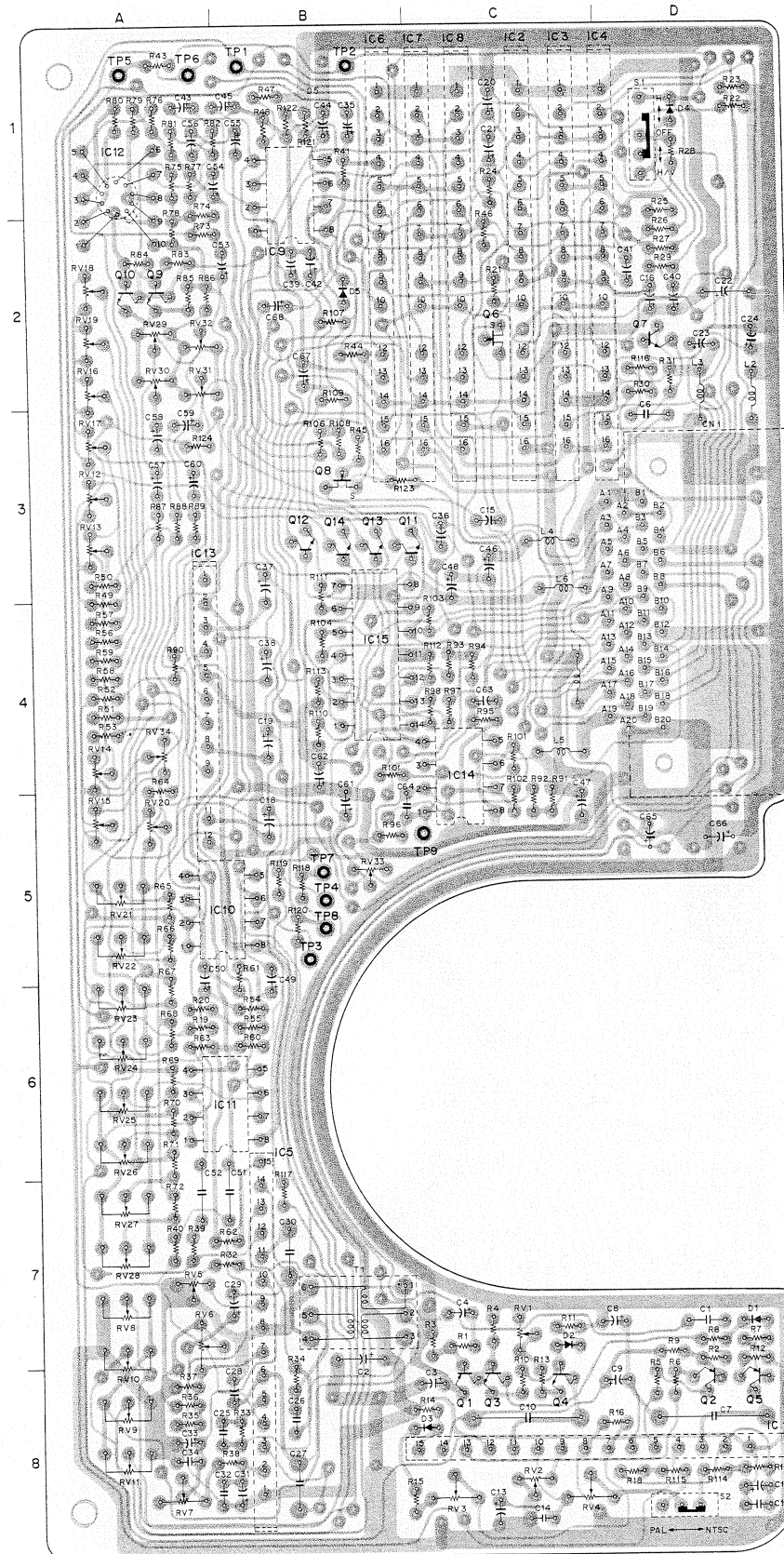






DF-23 BOARD
— SOLDERING SIDE —

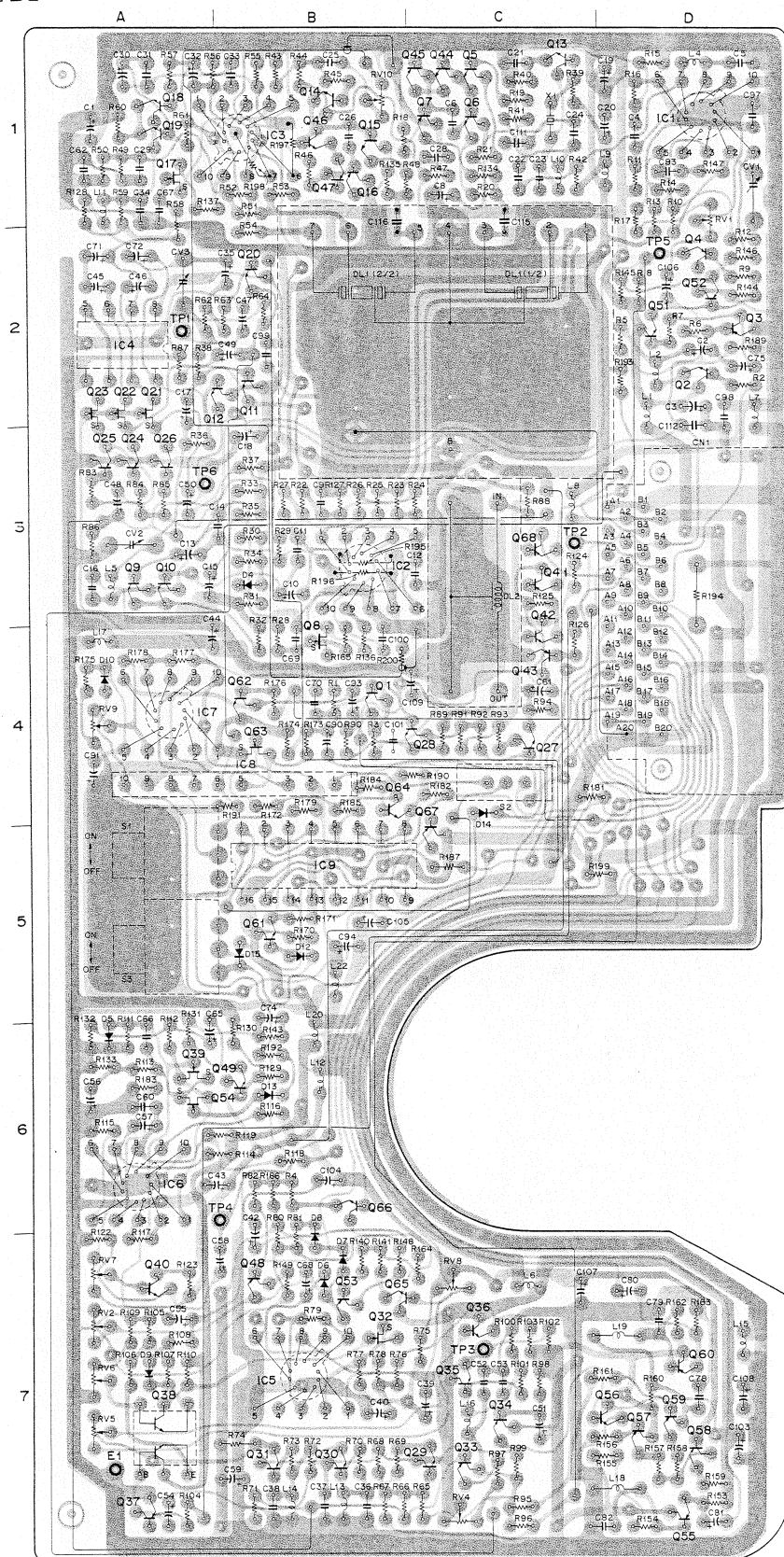
PARTS NO. 1-612-382-14



| | |
|------|-------|
| CN1 | D - 4 |
| D1 | D - 7 |
| D2 | C - 7 |
| D3 | C - 8 |
| D4 | D - 1 |
| D5 | B - 2 |
| IC1 | C - 8 |
| IC2 | C - 2 |
| IC3 | C - 2 |
| IC4 | D - 2 |
| IC5 | B - 7 |
| IC6 | B - 2 |
| IC7 | C - 2 |
| IC8 | C - 2 |
| IC9 | B - 1 |
| IC10 | A - 5 |
| IC11 | A - 6 |
| IC12 | A - 1 |
| IC13 | A - 4 |
| IC14 | C - 4 |
| IC15 | B - 4 |
| Q1 | C - 8 |
| Q2 | D - 8 |
| Q3 | C - 8 |
| Q4 | C - 8 |
| Q5 | D - 8 |
| Q6 | C - 2 |
| Q7 | D - 2 |
| Q8 | B - 3 |
| Q9 | A - 2 |
| Q10 | A - 2 |
| Q11 | C - 3 |
| Q12 | B - 3 |
| Q13 | B - 3 |
| Q14 | B - 3 |
| RV1 | C - 7 |
| RV2 | C - 8 |
| RV3 | C - 8 |
| RV4 | C - 8 |
| RV5 | A - 7 |
| RV6 | A - 7 |
| RV7 | A - 8 |
| RV8 | A - 7 |
| RV9 | A - 8 |
| RV10 | A - 7 |
| RV11 | A - 8 |
| RV12 | A - 3 |
| RV13 | A - 3 |
| RV14 | A - 4 |
| RV15 | A - 5 |
| RV16 | A - 2 |
| RV17 | A - 3 |
| RV18 | A - 2 |
| RV19 | A - 2 |
| RV20 | A - 5 |
| RV21 | A - 5 |
| RV22 | A - 5 |
| RV23 | A - 6 |
| RV24 | A - 6 |
| RV25 | A - 6 |
| RV26 | A - 6 |
| RV27 | A - 7 |
| RV28 | A - 7 |
| RV29 | A - 2 |
| RV30 | A - 2 |
| RV31 | A - 2 |
| RV32 | A - 2 |
| RV33 | B - 5 |
| RV34 | A - 4 |
| S1 | D - 1 |
| S2 | D - 8 |
| TP1 | B - 1 |
| TP2 | B - 1 |
| TP3 | B - 5 |
| TP4 | B - 5 |
| TP5 | A - 1 |
| TP6 | A - 1 |
| TP7 | B - 5 |
| TP8 | B - 5 |
| TP9 | C - 5 |

IE-6 BOARD
— SOLDERING SIDE —

PARTS NO. 1-608-886-16



CN1 D-3

CV1 D-1

CV2 A-3

CV3 A-2

D4 B-3

D5 A-6

D6 B-7

D7 B-7

D8 B-7

D9 A-7

D10 A-4

D12 B-6

D13 B-6

D14 C-5

D15 B-6

DL1 C-2

DL2 C-3

E1 A-7

IC1 D-1

IC2 B-3

IC3 B-1

IC4 A-2

IC5 B-7

IC6 A-6

IC7 A-4

IC8 B-4

IC9 B-6

Q1 B-4

Q2 D-2

Q3 D-2

Q4 D-2

Q5 C-1

Q6 C-1

Q7 C-1

Q8 B-4

Q9 A-3

Q10 A-3

Q11 B-2

Q12 B-2

Q13 C-1

Q14 B-1

Q15 B-1

Q16 B-1

Q17 A-1

Q18 A-1

Q19 A-1

Q20 B-2

Q21 A-2

Q22 A-2

Q23 A-2

Q24 A-3

Q25 A-3

Q26 A-3

Q27 C-4

Q28 C-4

Q29 C-7

Q30 B-7

Q31 B-7

Q32 B-7

Q33 C-7

Q34 C-7

Q35 C-7

Q36 C-7

Q37 A-7

Q38 A-7

Q39 A-6

Q40 A-7

Q41 C-3

Q42 C-4

Q43 C-4

Q44 C-1

Q45 C-1

Q46 B-1

Q47 B-1

Q48 B-7

Q49 B-6

Q50 D-2

Q51 D-2

Q52 D-2

Q53 B-7

Q54 A-6

Q55 D-7

Q56 D-7

Q57 D-7

Q58 D-7

Q59 D-7

Q60 D-7

Q61 B-6

Q62 B-4

Q63 B-4

Q64 B-4

Q65 B-7

Q66 B-6

Q67 C-6

Q68 C-3

RV1 D-1

RV2 A-7

RV3 A-7

RV4 C-7

RV5 A-7

RV6 A-7

RV7 A-7

RV8 C-7

RV9 A-4

S1 A-5

S2 C-4

S3 A-5

TP1 A-2

TP2 C-3

TP3 C-7

TP4 A-6

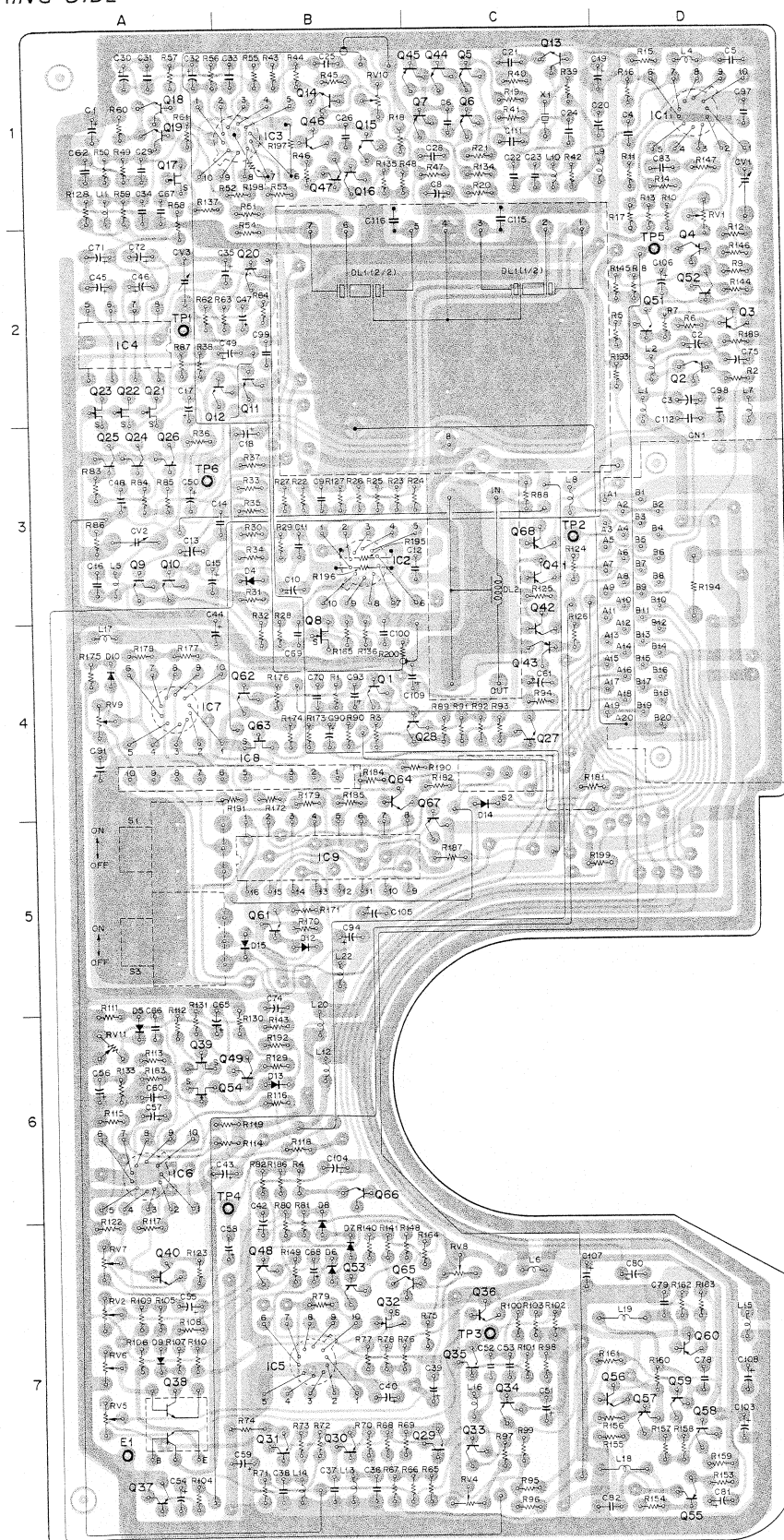
TP5 D-2

TP6 A-3

X1 C-1

E-6/6P

IE-6/6P BOARD
— SOLDERING SIDE —



- CN1 D - 3

- CV1 D - 1
CV2 A - 3
CV3 A - 2

- | | |
|----|-------|
| D4 | B - 3 |
| D5 | A - 6 |
| D6 | B - 7 |

- | | |
|-----|-------|
| D7 | B - 7 |
| D8 | B - 7 |
| D9 | A - 7 |
| D10 | A - 4 |

- D12 B - 5
D13 B - 6
D14 C - 5
D15 B - 5

- | | |
|-----|-------|
| DL1 | C - 2 |
| DL2 | C - 3 |

- | | |
|-----|-------|
| E1 | A - 1 |
| IC1 | D - 1 |
| IC2 | B - 1 |

- | | |
|-----|-----|
| IC3 | B - |
| IC4 | A - |
| IC5 | B - |
| IC6 | A - |

- | | |
|-----|-----|
| IC7 | A - |
| IC8 | B - |
| IC9 | B - |

- Q1 B -
Q2 D -
Q3 D -

- | | |
|----|-----|
| Q4 | C - |
| Q5 | C - |
| Q6 | C - |
| Q7 | C - |

- | | |
|-----|-----|
| Q8 | B - |
| Q9 | A - |
| Q10 | A - |
| Q11 | B - |

- Q12 B -
Q13 C -
Q14 B -
Q15 B -

- Q16 B -
Q17 A -
Q18 A -
Q19 A -

- | | |
|-----|---|
| Q20 | B |
| Q21 | A |
| Q22 | A |
| Q23 | A |

- | | |
|-----|---|
| Q24 | A |
| Q25 | A |
| Q26 | A |
| Q27 | C |

- | | |
|-----|---|
| Q28 | C |
| Q29 | C |
| Q30 | B |
| Q31 | B |

- | | |
|-----|---|
| Q32 | B |
| Q33 | C |
| Q34 | C |

- | | |
|-----|---|
| Q36 | C |
| Q37 | A |
| Q38 | A |

- | | |
|-----|---|
| Q39 | A |
| Q40 | A |
| Q41 | C |
| Q42 | C |

- | | |
|-----|---|
| Q43 | C |
| Q44 | C |
| Q45 | C |
| Q46 | B |

- | | |
|-----|---|
| Q47 | B |
| Q48 | B |
| Q49 | B |
| Q51 | D |

- | | |
|-----|---|
| Q52 | D |
| Q53 | B |
| Q54 | A |
| Q55 | D |

- Q56 D
Q57 D
Q58 D
Q59 D

- | | |
|-----|---|
| Q60 | D |
| Q61 | B |
| Q62 | B |
| Q63 | B |

- | | |
|-----|---|
| Q64 | B |
| Q65 | B |
| Q66 | B |
| Q67 | B |

- | | |
|-----|---|
| Q68 | C |
| RV1 | C |

- | | |
|-----|---|
| RV2 | A |
| RV4 | C |
| RV5 | A |
| RV6 | A |

- | | |
|------|---|
| RV7 | A |
| RV8 | C |
| RV9 | A |
| RV10 | E |

- | | |
|------|---|
| RV11 | A |
| S1 | A |
| S2 | C |

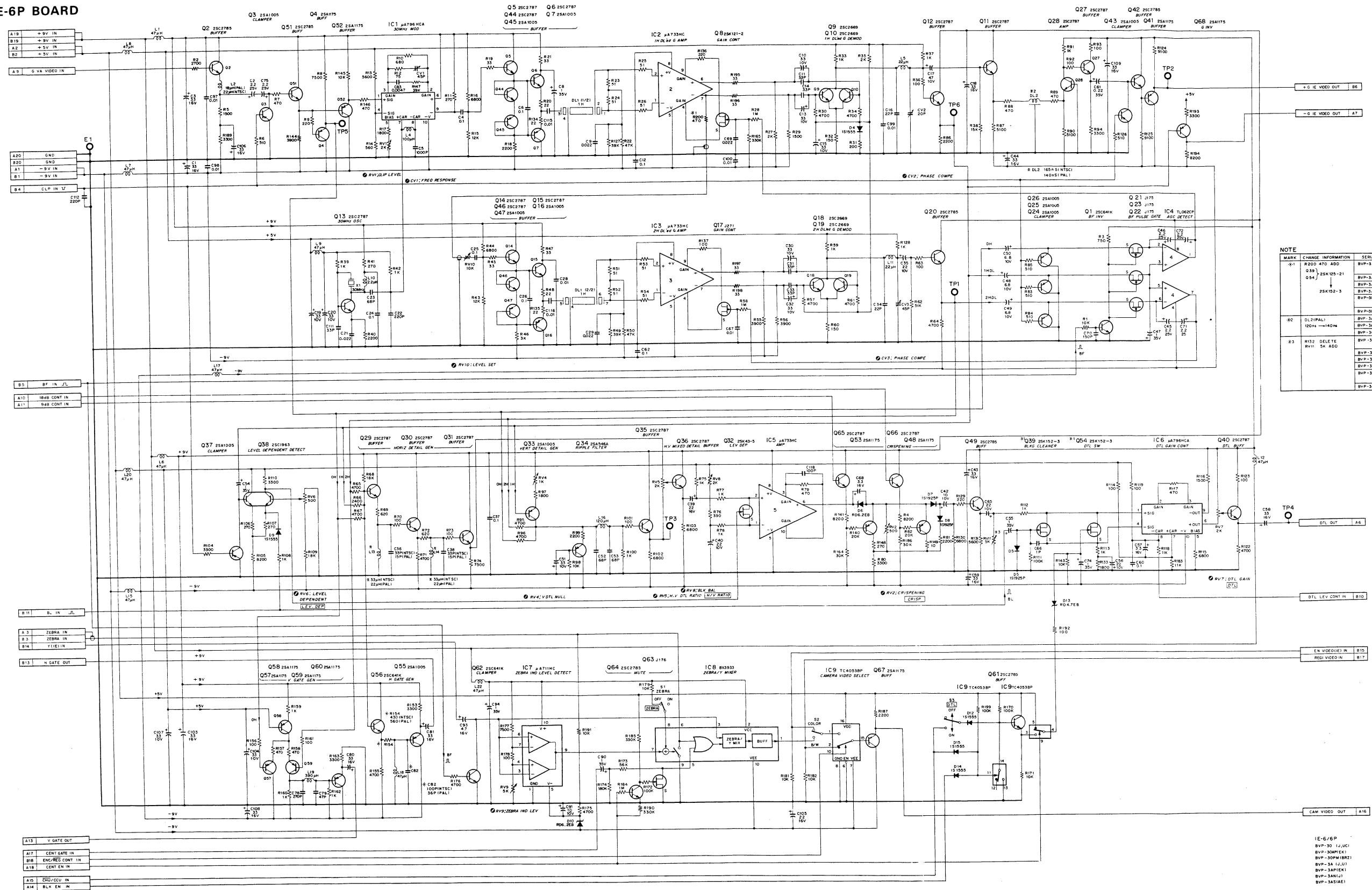
- | | |
|-----|---|
| S3 | A |
| TP1 | A |
| TP2 | A |

- TP3
TP4
TP5
TP6

- X1

IE-6/6P BOARD
1-606-886-17
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)

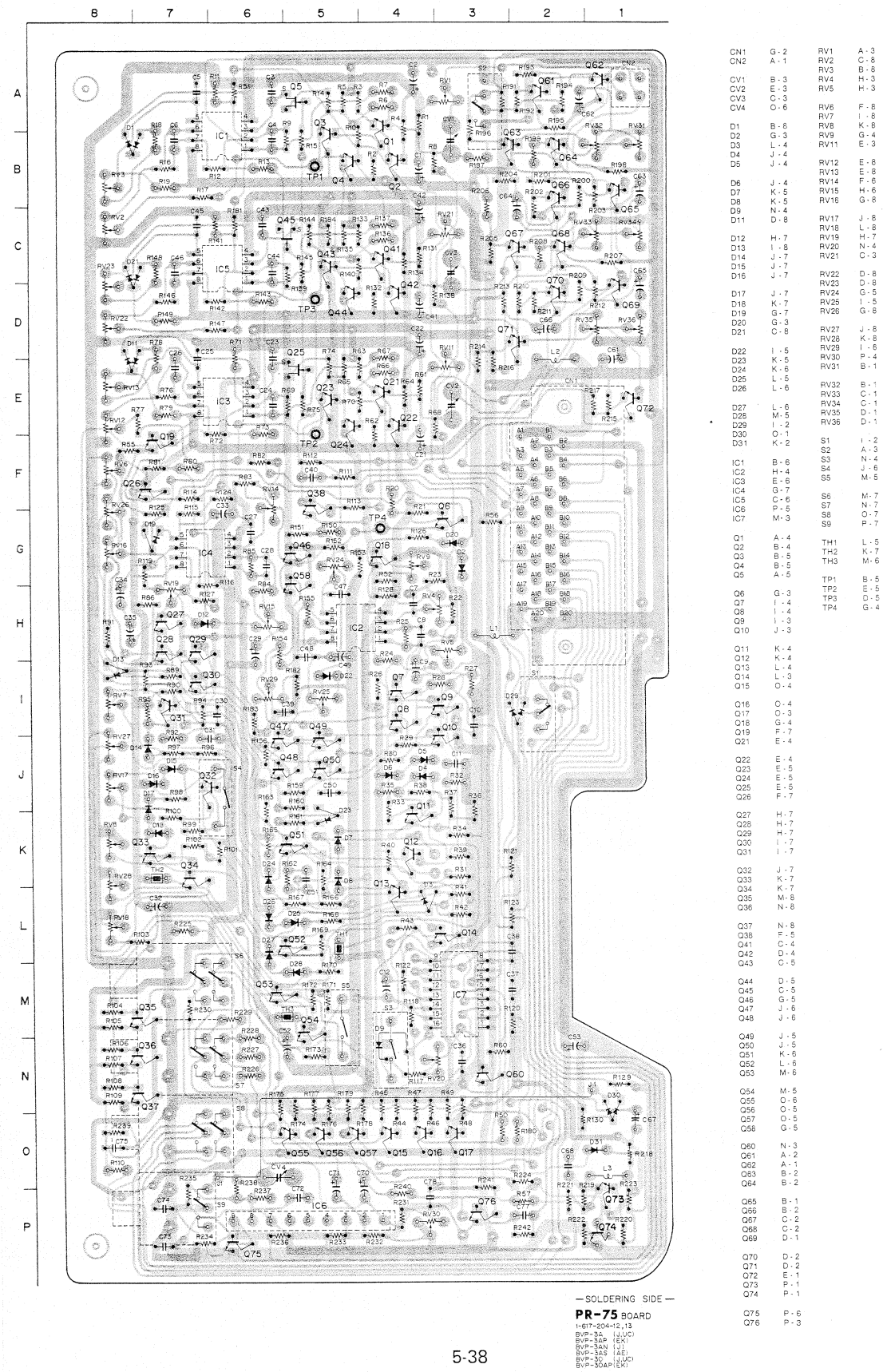
IE-6P BOARD



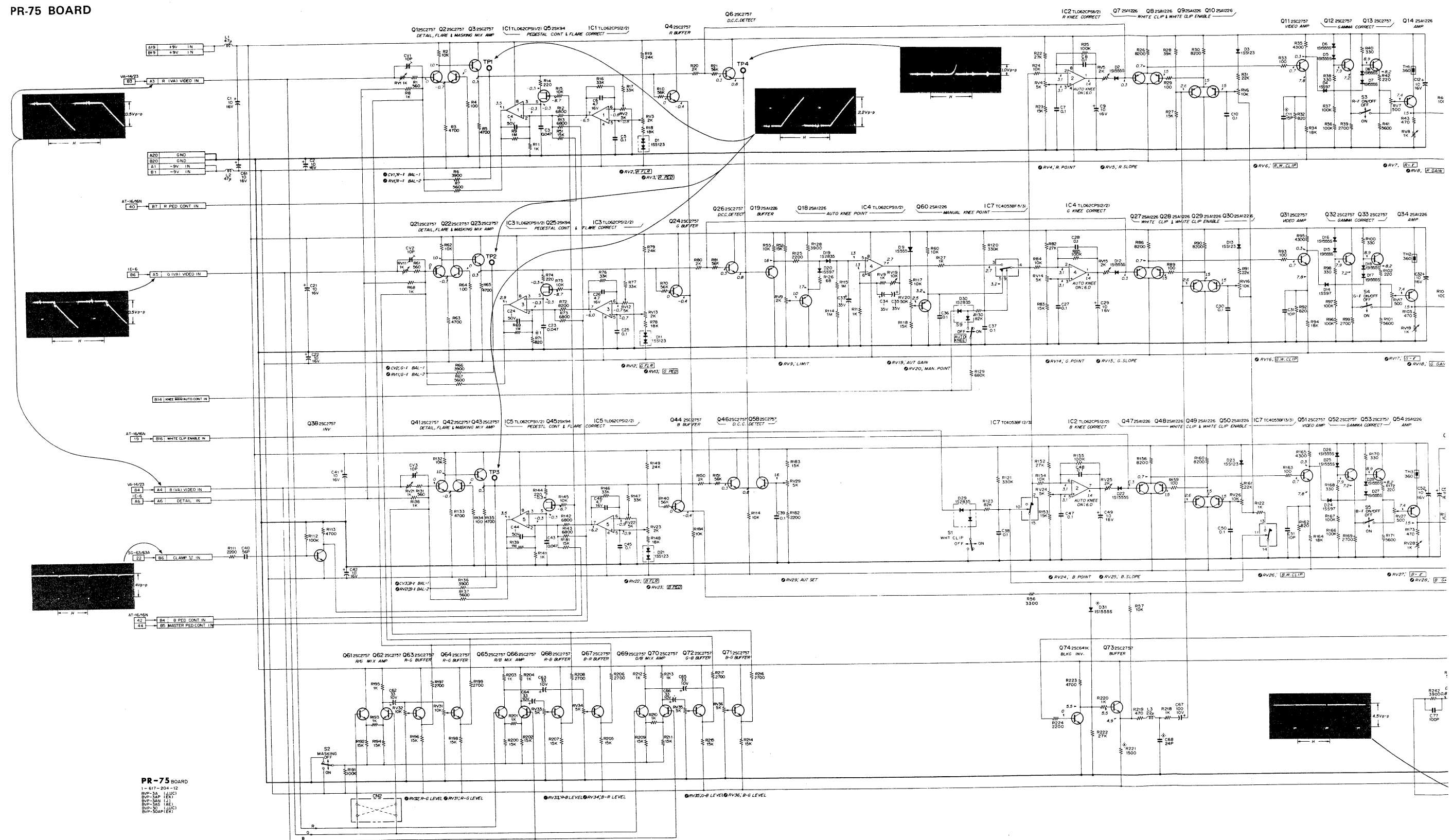
NOTE

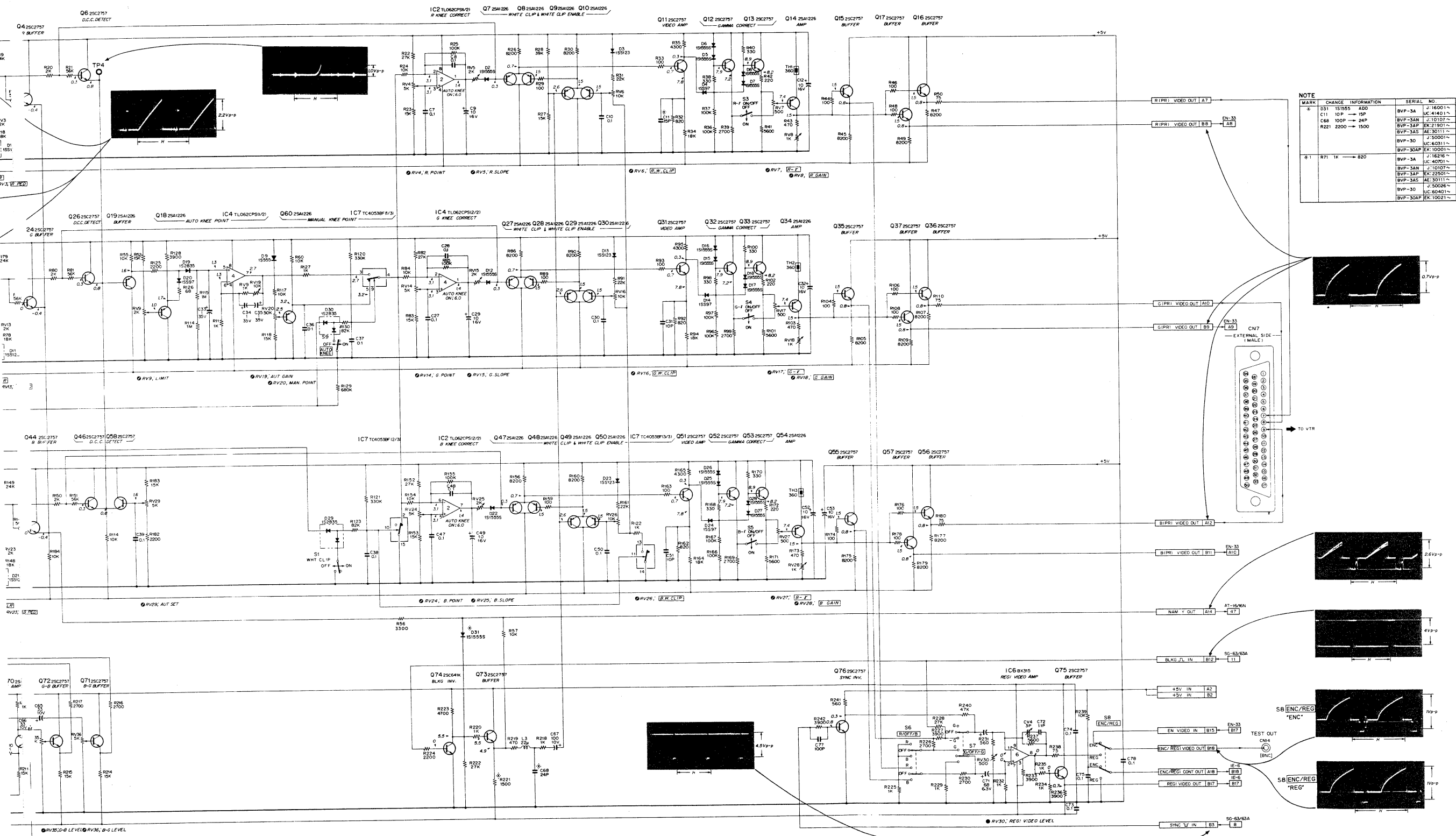
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PR-75 BOARD
— SOLDERING SIDE —



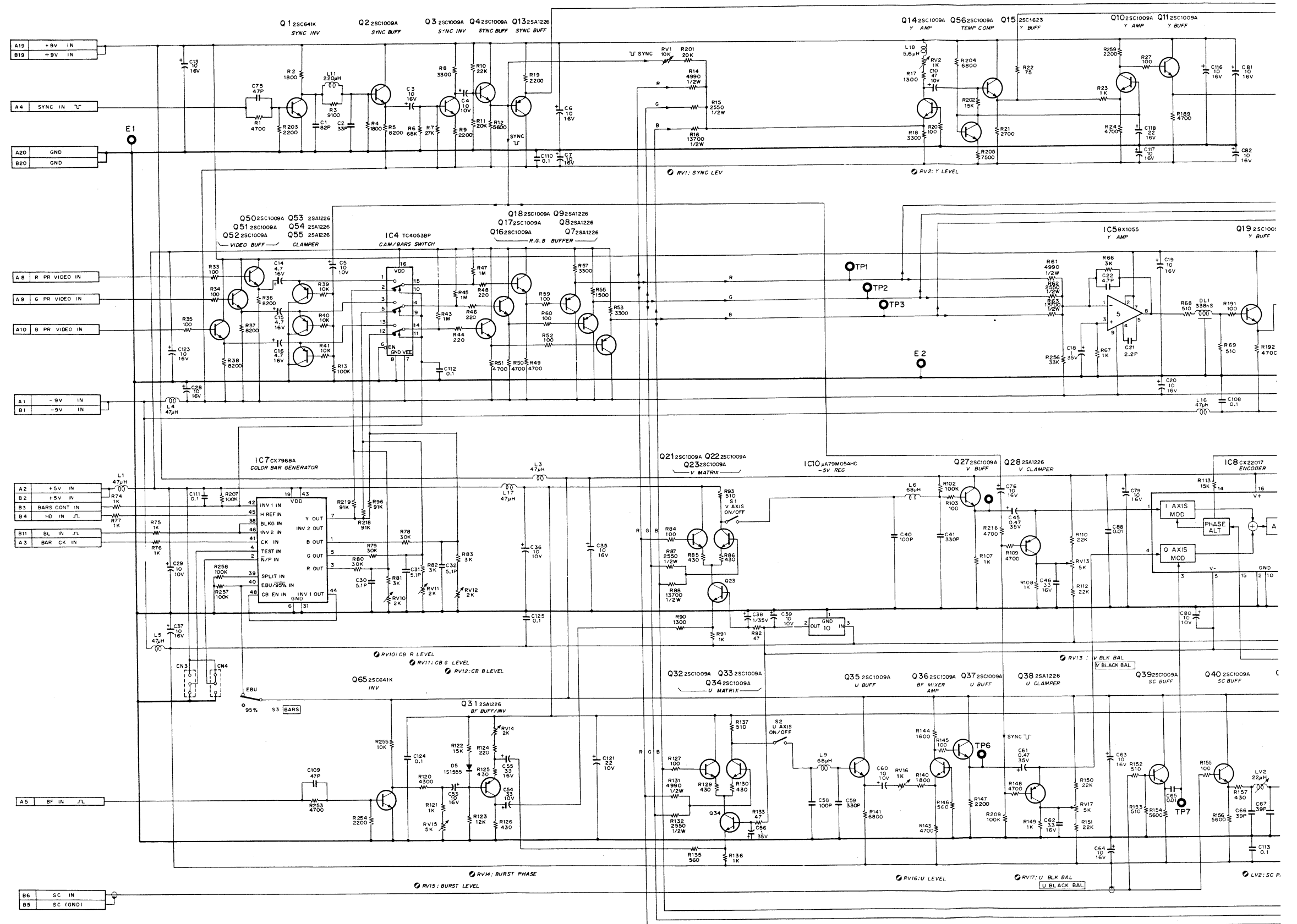
PR-75 BOARD





| NOTE | | | SERIAL NO. | |
|------|--|-------------|------------|--------------------------|
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| * 1 | D31 15155 → 44D C11 10P → 12P C68 100P → 24P R221 220Ω → 150Ω | | BVP-3A | JE 1600111 EC 4140113 |
| | | | BVP-3AN | JE 1010711 EC 2190111 |
| | | | BVP-3AS | AE 3011111 JE 5000211 |
| | | | BVP-30 | UC 6031111 |
| | | | BVP-30AP | EC 1000111 JE 1621611 |
| * 2 | R71 1K → 82K | | BVP-3A | EC 4070111 |
| | | | BVP-3AN | JE 1010711 EC 2250111 |
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| | | | BVP-30AP | EC 1002111 |

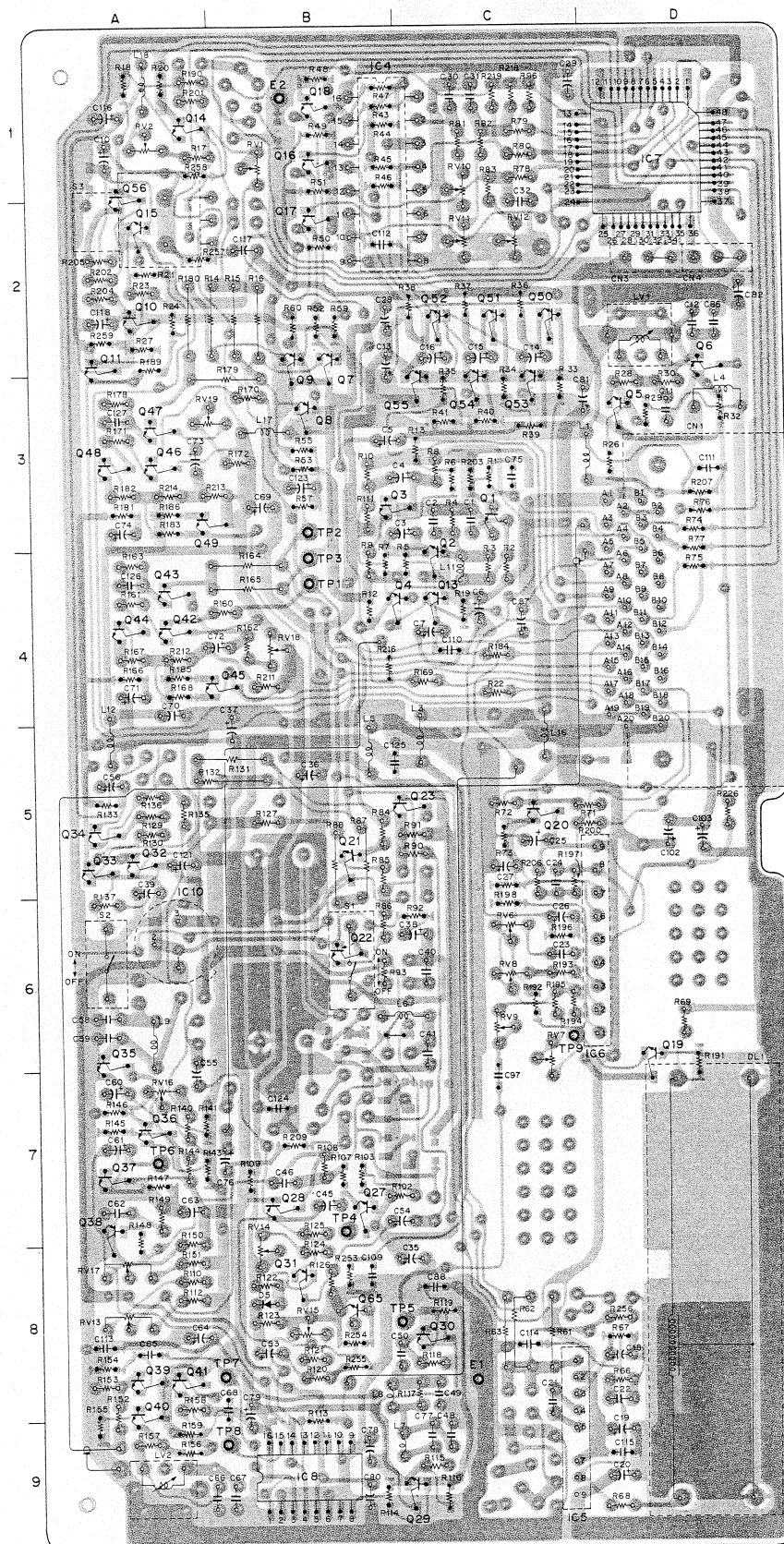
COLOR BAR GEN





EN-33A BOARD
— SOLDERING SIDE —

Parts. No. 1-612-776-22



CN1 D-3
CN3 D-2
CN4 D-2

D5 B-8

DL1 D-8

E1 C-8
E2 B-1

IC4 B-1
IC5 C-9
IC6 D-6
IC7 D-1
IC8 B-9
IC10 A-8

LV1 D-2
LV2 A-9

Q1 C-3
Q2 C-4
Q3 B-3
Q4 A-4
Q5 D-3
Q6 D-2
Q7 B-2
Q8 B-3
Q9 B-2
Q10 A-2
Q11 A-2
Q13 C-4
Q14 A-1
Q15 A-2
Q16 B-1
Q17 B-2
Q18 B-1
Q19 D-6
Q20 C-5
Q21 B-5
Q22 B-6
Q23 B-5
Q27 B-7
Q28 B-7
Q29 C-9
Q30 C-8
Q31 B-8
Q32 A-5
Q33 B-5
Q34 A-5
Q35 A-6
Q36 A-7
Q37 A-7
Q38 A-7
Q39 A-8
Q40 A-8
Q41 A-8
Q42 A-4
Q43 A-4
Q44 A-4
Q45 A-4
Q46 A-3
Q47 A-3
Q48 A-3
Q49 A-3
Q50 C-2
Q51 C-2
Q52 C-2
Q53 C-3
Q54 C-3
Q55 C-3
Q56 A-1
Q65 B-8

RV1 B-1
RV2 A-1
RV8 C-6
RV7 C-5
RV8 C-6
RV9 C-6
RV10 C-1
RV11 C-2
RV12 C-2
RV13 A-8
RV14 B-8
RV15 B-8
RV16 A-7
RV17 A-8
RV18 B-4
RV19 A-3

S1 B-8
S2 A-8
S3 A-2

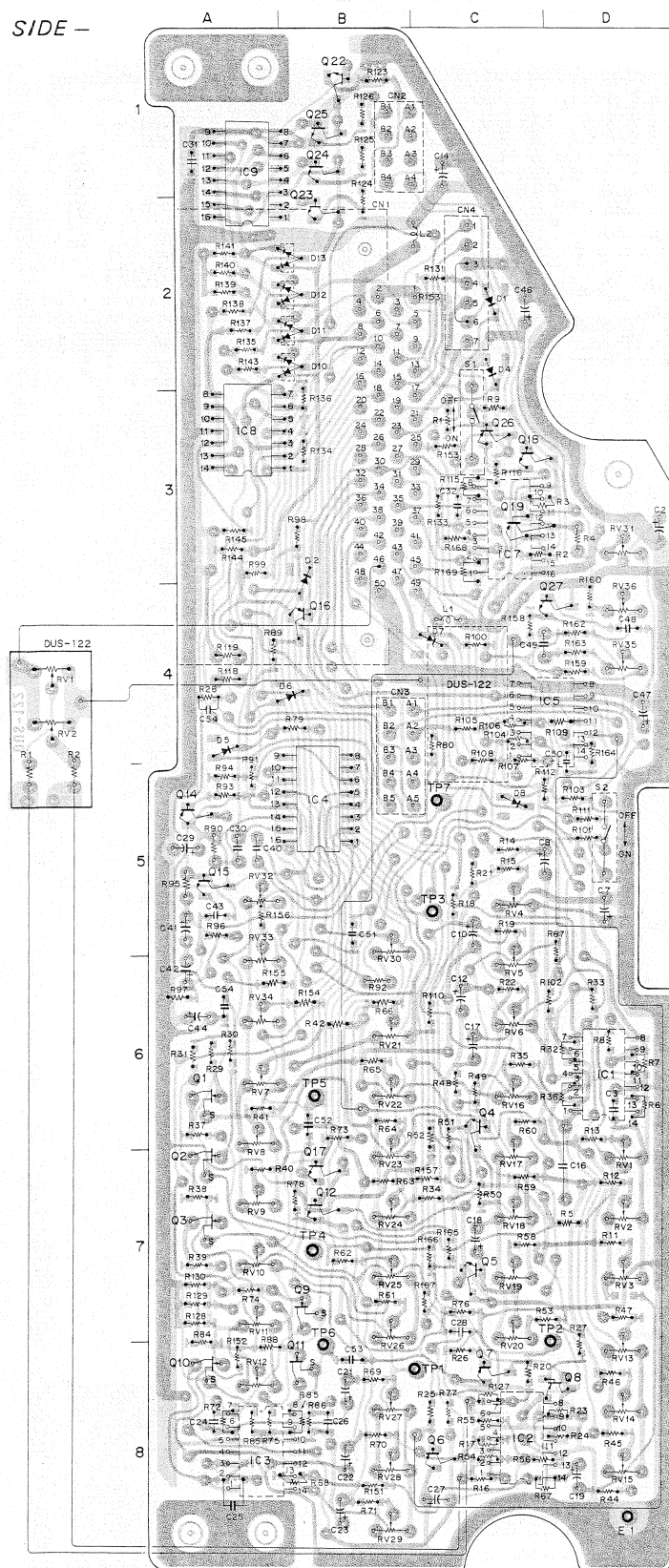
TP1 B-4
TP2 B-3
TP3 B-4
TP4 B-7
TP5 B-8
TP6 A-7
TP7 A-8
TP8 A-8
TP9 C-8

SH-8A

Parts. No. 1-608-890-14

SH-8A BOARD

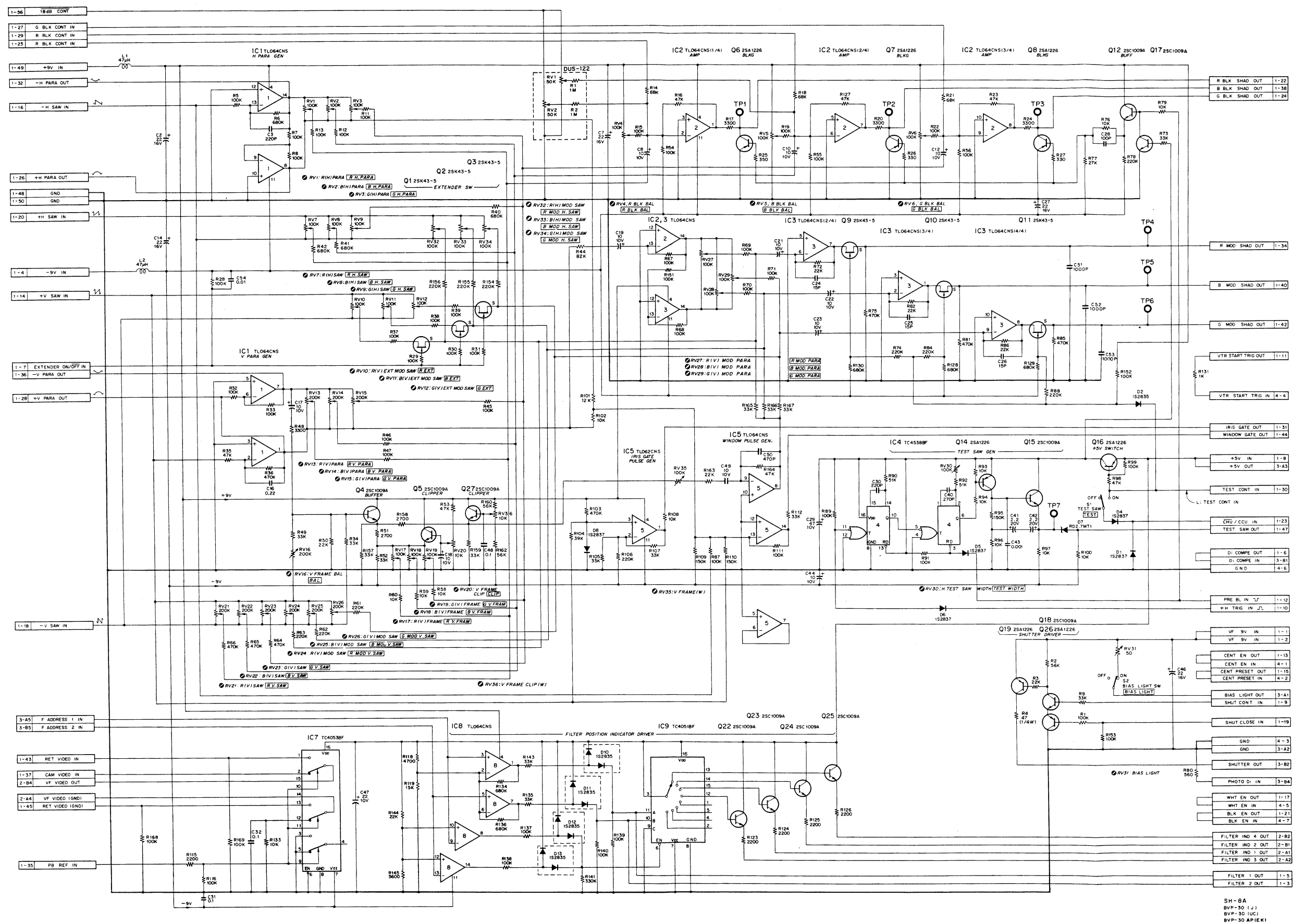
— SOLDERING SIDE —

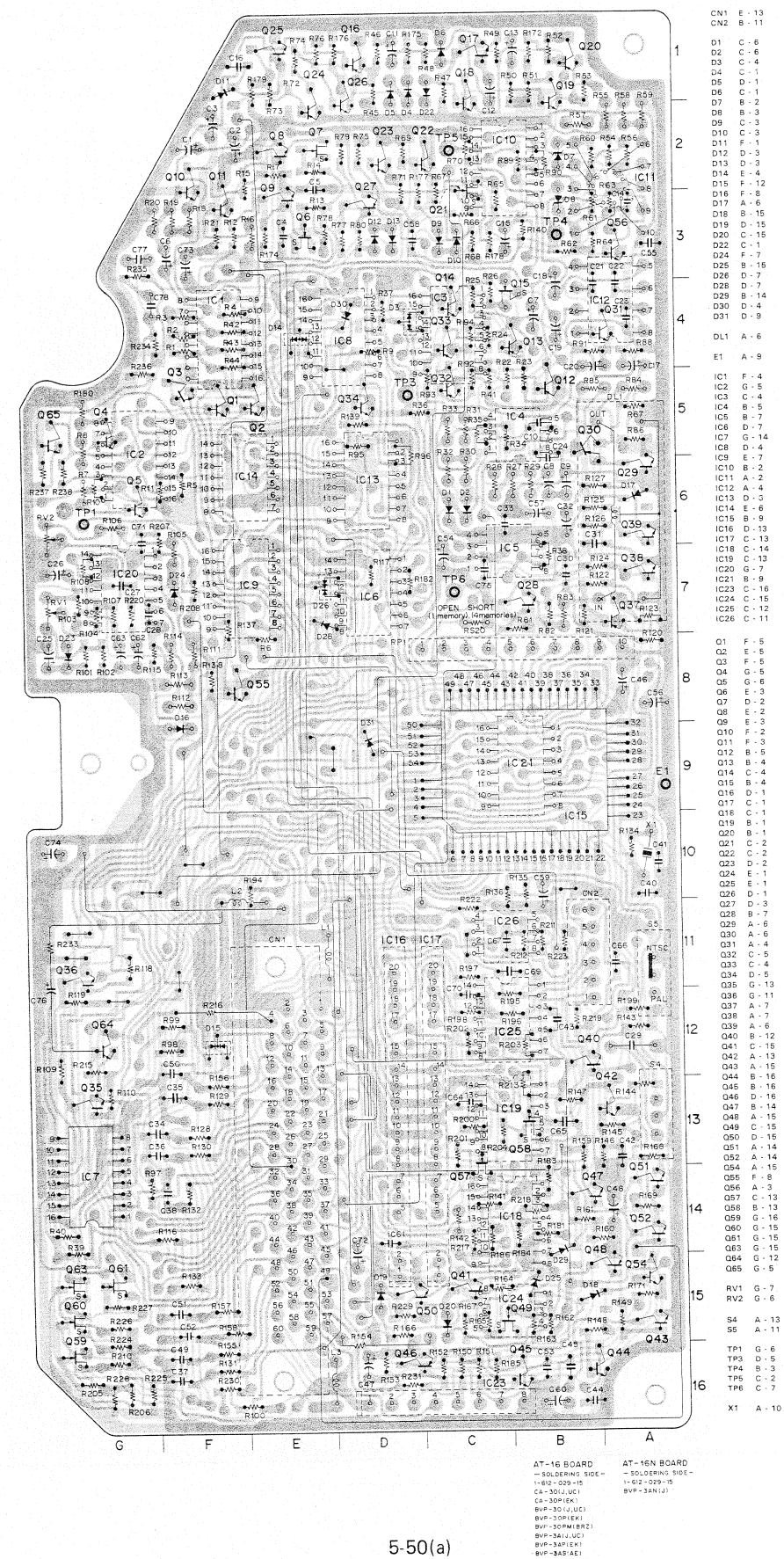


CN1 B-2
 CN2 B-1
 CN3 B-4
 CN4 C-2
 E1 D-8
 D1 C-2
 D2 B-3
 D4 C-2
 D5 A-4
 D6 B-4
 D7 C-4
 D8 C-5
 D10 B-2
 D11 B-2
 D12 B-2
 D13 B-2
 IC1 D-6
 IC2 C-8
 IC3 A-8
 IC4 B-5
 IC5 D-4
 IC7 C-3
 IC8 A-3
 IC9 A-1
 Q1 A-6
 Q2 A-7
 Q3 A-7
 Q4 C-6
 Q5 C-7
 Q6 C-8
 Q7 C-8
 Q8 C-8
 Q9 B-7
 Q10 A-8
 Q11 B-8
 Q12 B-7
 Q14 A-5
 Q15 A-5
 Q16 B-4
 Q17 B-7
 Q18 C-3
 Q19 C-3
 Q22 B-1
 Q23 B-2
 Q24 B-1
 Q25 B-1
 Q27 D-4
 RV1 D-7
 RV2 D-7
 RV3 D-7
 RV4 C-6
 RV5 C-6
 RV6 C-6
 RV7 A-6
 RV8 A-6
 RV9 A-7
 RV10 A-7
 RV11 A-7
 RV12 A-8
 RV13 D-8
 RV14 D-8
 RV15 D-8
 RV16 C-6
 RV17 C-7
 RV18 C-7
 RV19 C-7
 RV20 C-7
 RV21 B-6
 RV22 B-6
 RV23 B-7
 RV24 B-7
 RV25 B-7
 RV26 B-7
 RV27 B-8
 RV28 B-8
 RV29 B-8
 RV30 B-8
 RV31 D-3
 RV32 A-5
 RV33 A-6
 RV34 A-6
 RV35 D-4
 RV36 D-4
 S1 C-3
 S2 D-5
 TP1 C-8
 TP2 D-7
 TP3 C-5
 TP4 B-7
 TP5 B-6
 TP6 B-8
 TP7 C-5

SH-8A BOARD-14
 SUP-10 (4U1)
 SUP-32AP (6K)

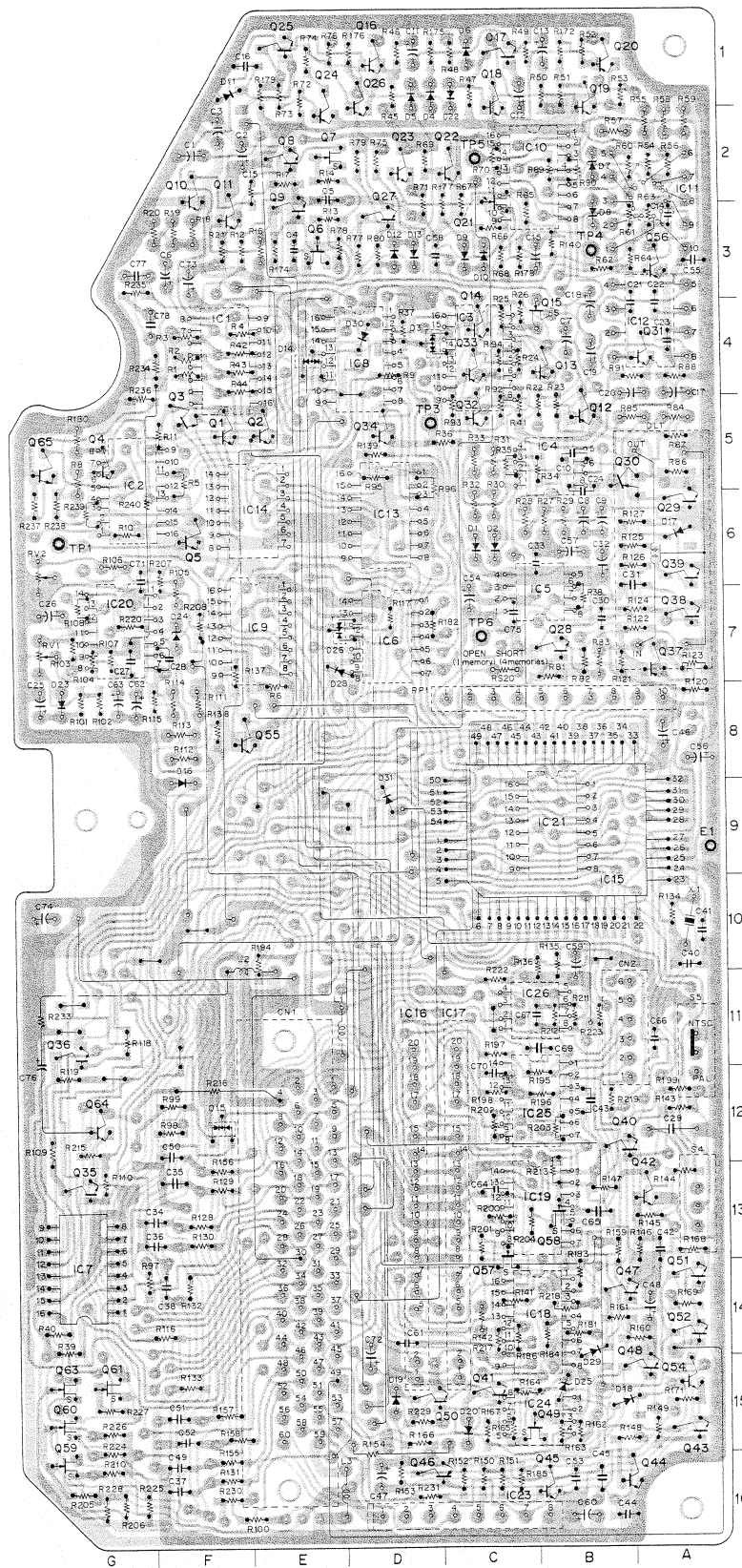
SH-8A BOARD





AT-16/16N

PARTS NO. 1-162-029-16, 17



CN1 E-13
CN2 B-11

D1 C-6
D2 C-6
D3 C-4
D4 C-1
D5 D-1
D6 C-1
D7 B-2
D8 B-3
D9 C-3
D10 C-3
D11 F-1
D12 D-3
D13 D-3
D14 E-4
D15 F-12
D16 F-8
D17 A-6
D18 B-15
D19 D-15
D20 C-15
D22 C-1
D24 F-7
D25 B-15
D26 D-7
D28 D-7
D29 B-14
D30 D-4
D31 D-9

DL1 A-6
E1 A-9

IC1 F-4
IC2 G-5
IC3 C-4
IC4 B-5
IC5 B-7
IC6 D-7
IC7 G-14
IC8 D-4
IC9 E-7
IC10 B-2
IC11 A-2
IC12 A-4
IC13 D-6
IC14 E-6
IC15 B-9
IC16 D-13
IC17 C-13
IC18 C-14
IC19 C-13
IC20 G-7
IC21 B-9
IC23 C-16
IC24 C-15
IC25 C-12
IC26 C-11

Q1 F-5
Q2 E-5
Q3 F-5
Q4 G-5
Q5 F-6
Q6 E-3
Q7 D-2
Q8 E-2
Q9 E-3
Q10 F-2
Q11 F-3
Q12 B-5
Q13 B-4
Q14 C-4
Q15 B-4
Q16 D-1
Q17 C-1
Q18 C-1
Q19 B-1
Q20 B-1
Q21 C-2
Q22 C-2
Q23 D-2
Q24 E-1
Q25 E-1
Q26 D-1
Q27 D-3
Q28 B-7
Q29 A-8
Q30 A-6
Q31 A-4
Q32 C-5
Q33 C-4
Q34 D-5
Q35 G-13
Q36 G-11
Q37 A-7
Q38 A-7
Q39 A-6
Q40 B-12
Q41 C-15
Q42 A-13
Q43 A-15
Q44 B-16
Q45 B-16
Q46 D-16
Q47 B-14
Q48 A-15
Q49 C-15
Q50 D-15
Q51 A-14
Q52 A-14
Q54 A-15
Q55 F-8
Q56 A-3
Q57 C-13
Q58 B-13
Q59 G-16
Q60 G-15
Q61 G-15
Q63 G-15
Q64 G-12
Q65 G-5

Q1 F-5
Q2 E-5
Q3 F-5
Q4 G-5
Q5 F-6
Q6 E-3
Q7 D-2
Q8 E-2
Q9 E-3
Q10 F-2
Q11 F-3
Q12 B-5
Q13 B-4
Q14 C-4
Q15 B-4
Q16 D-1
Q17 C-1
Q18 C-1
Q19 B-1
Q20 B-1
Q21 C-2
Q22 C-2
Q23 D-2
Q24 E-1
Q25 E-1
Q26 D-1
Q27 D-3
Q28 B-7
Q29 A-8
Q30 A-6
Q31 A-4
Q32 C-5
Q33 C-4
Q34 D-5
Q35 G-13
Q36 G-11
Q37 A-7
Q38 A-7
Q39 A-6
Q40 B-12
Q41 C-15
Q42 A-13
Q43 A-15
Q44 B-16
Q45 B-16
Q46 D-16
Q47 B-14
Q48 A-15
Q49 C-15
Q50 D-15
Q51 A-14
Q52 A-14
Q54 A-15
Q55 F-8
Q56 A-3
Q57 C-13
Q58 B-13
Q59 G-16
Q60 G-15
Q61 G-15
Q63 G-15
Q64 G-12
Q65 G-5

RV1 G-7
RV2 G-6
S4 A-13
S5 A-11
TP1 G-6
TP3 D-5
TP4 B-3
TP5 C-2
TP6 C-7

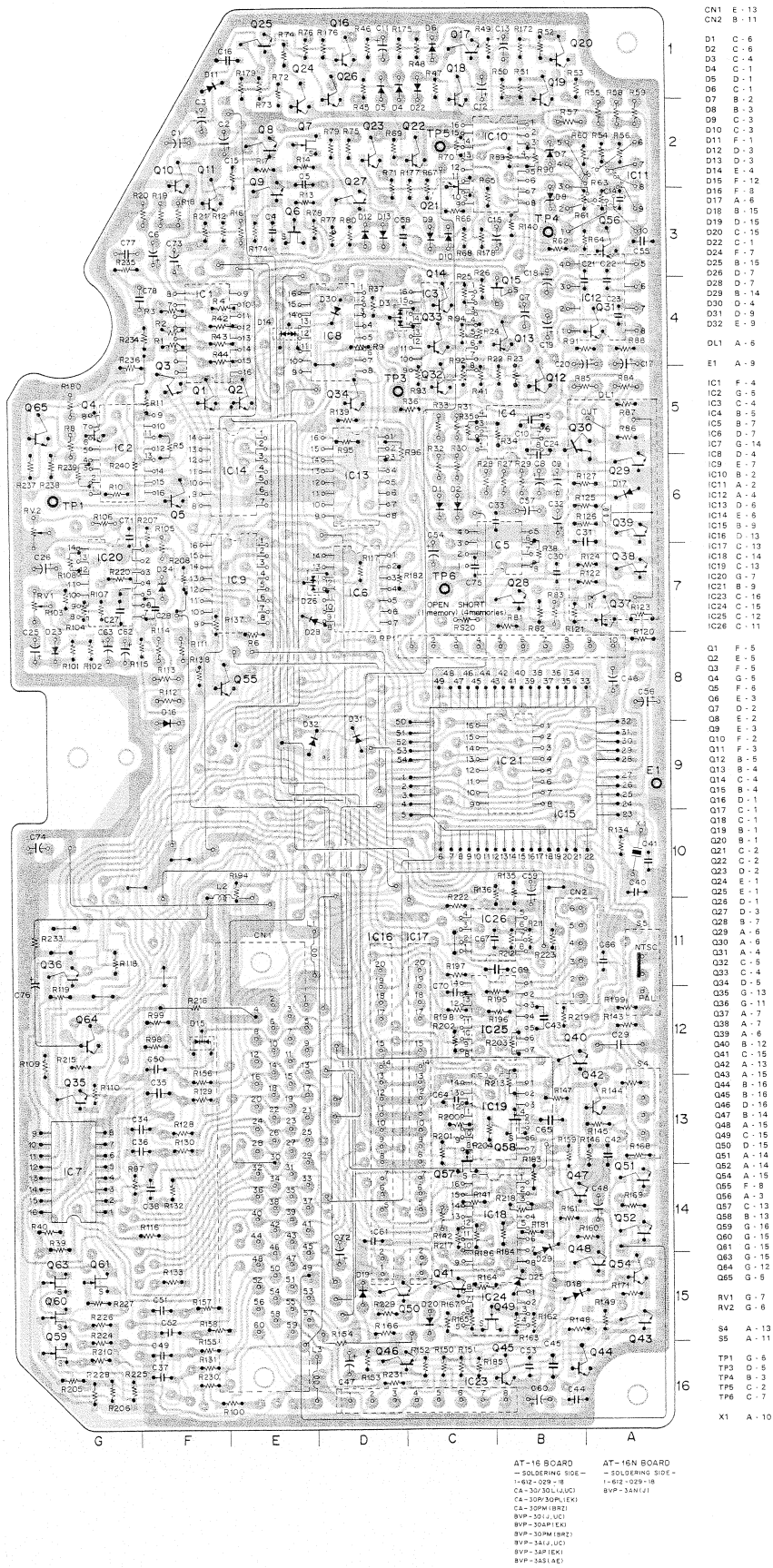
X1 A-10

AT-16 BOARD
-SOLDERING SIDE-
-62-029-16,17
CA-30P(SO,LEK)
CA-30PM(SO)
BVP-30(L,UCI)
BVP-30AP(LK)
BVP-30PM(SR2)
BVP-30(L,UCI)
BVP-30P(LK)
BVP-30S(AE)

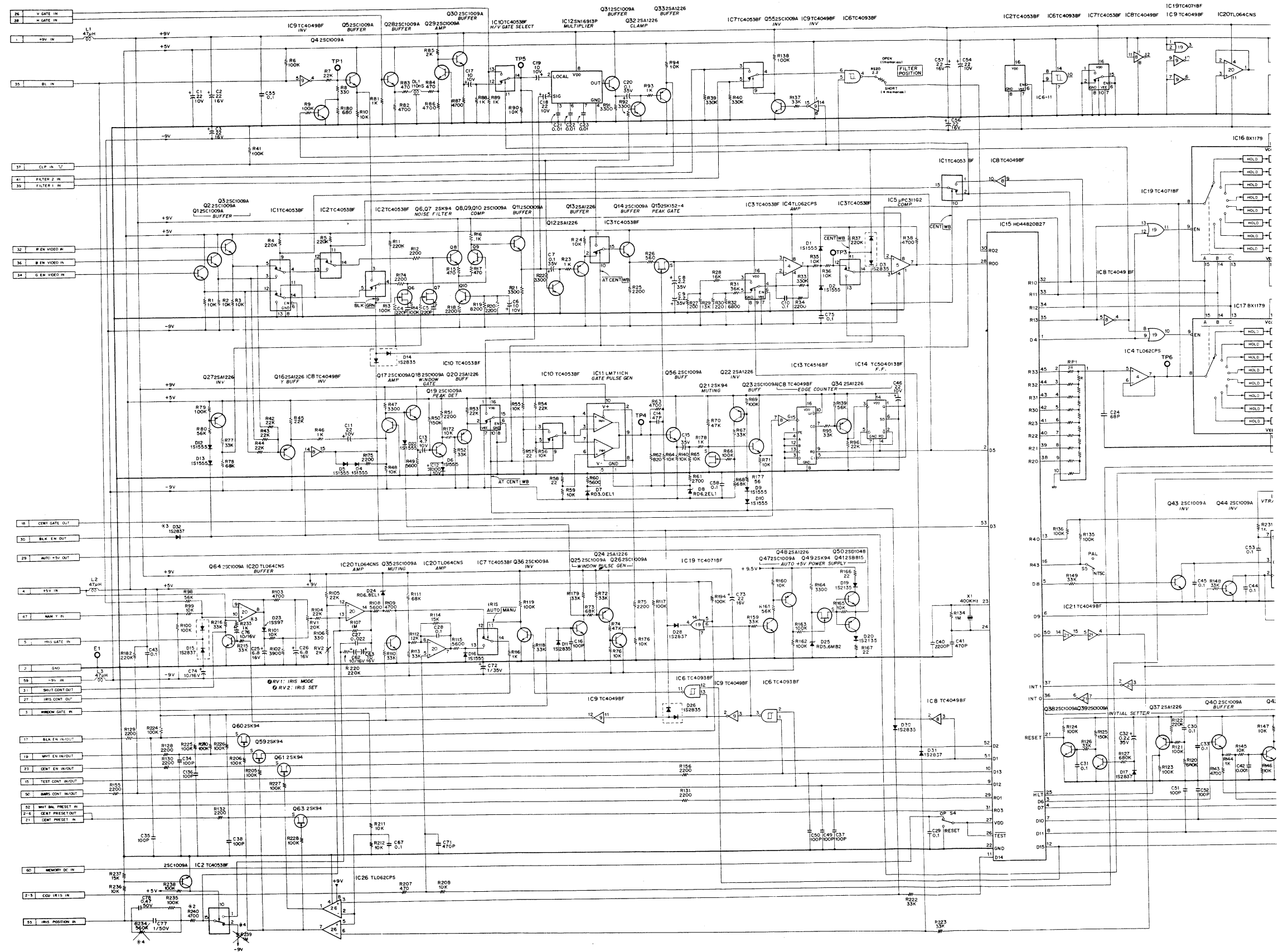
AT-16N BOARD
-SOLDERING SIDE-
-62-029-16,17
BVP-30(L,UCI)
BVP-30S(AE)

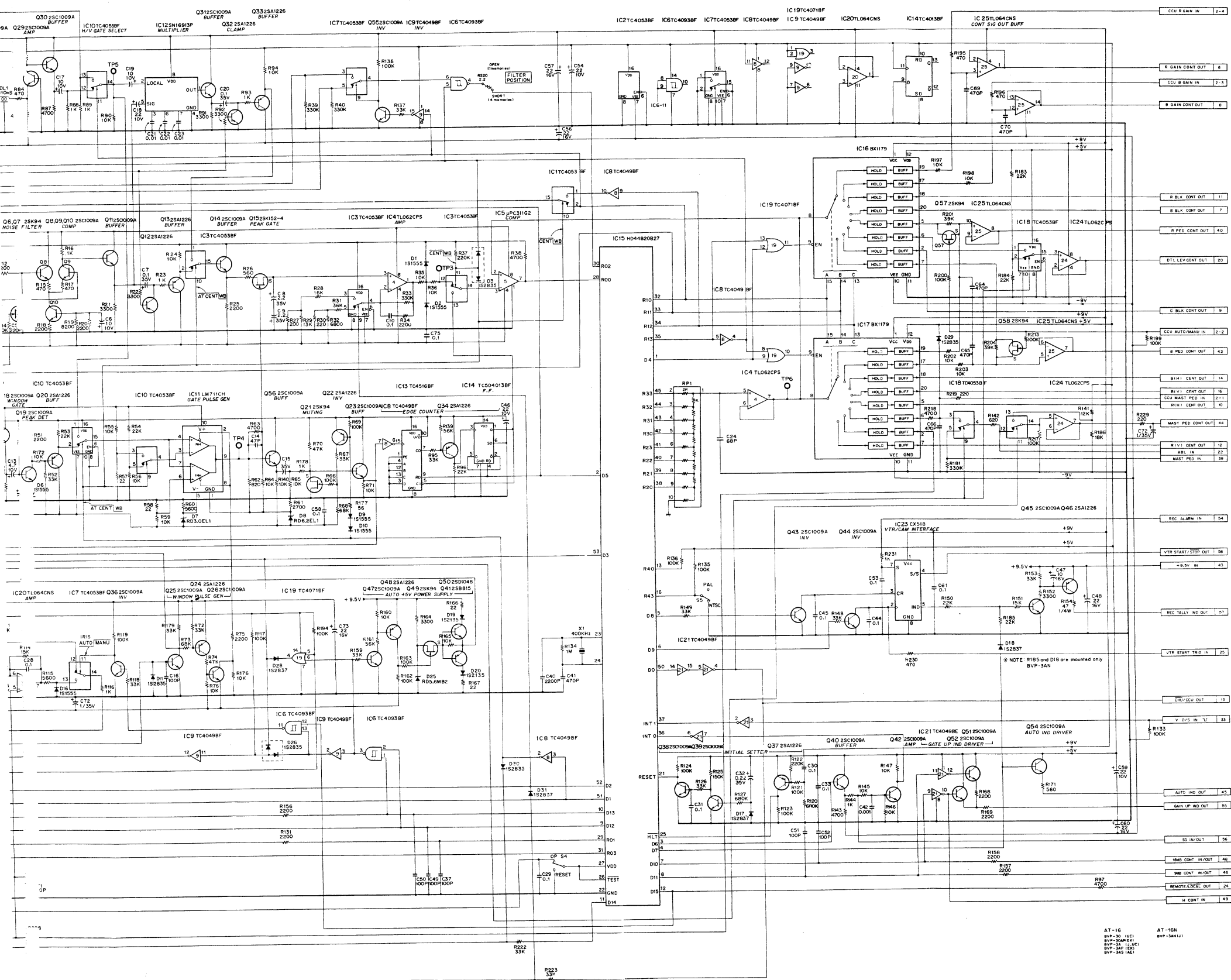
T-16/16N

PARTS NO. 1-162-029-18



AT-16 BOARD





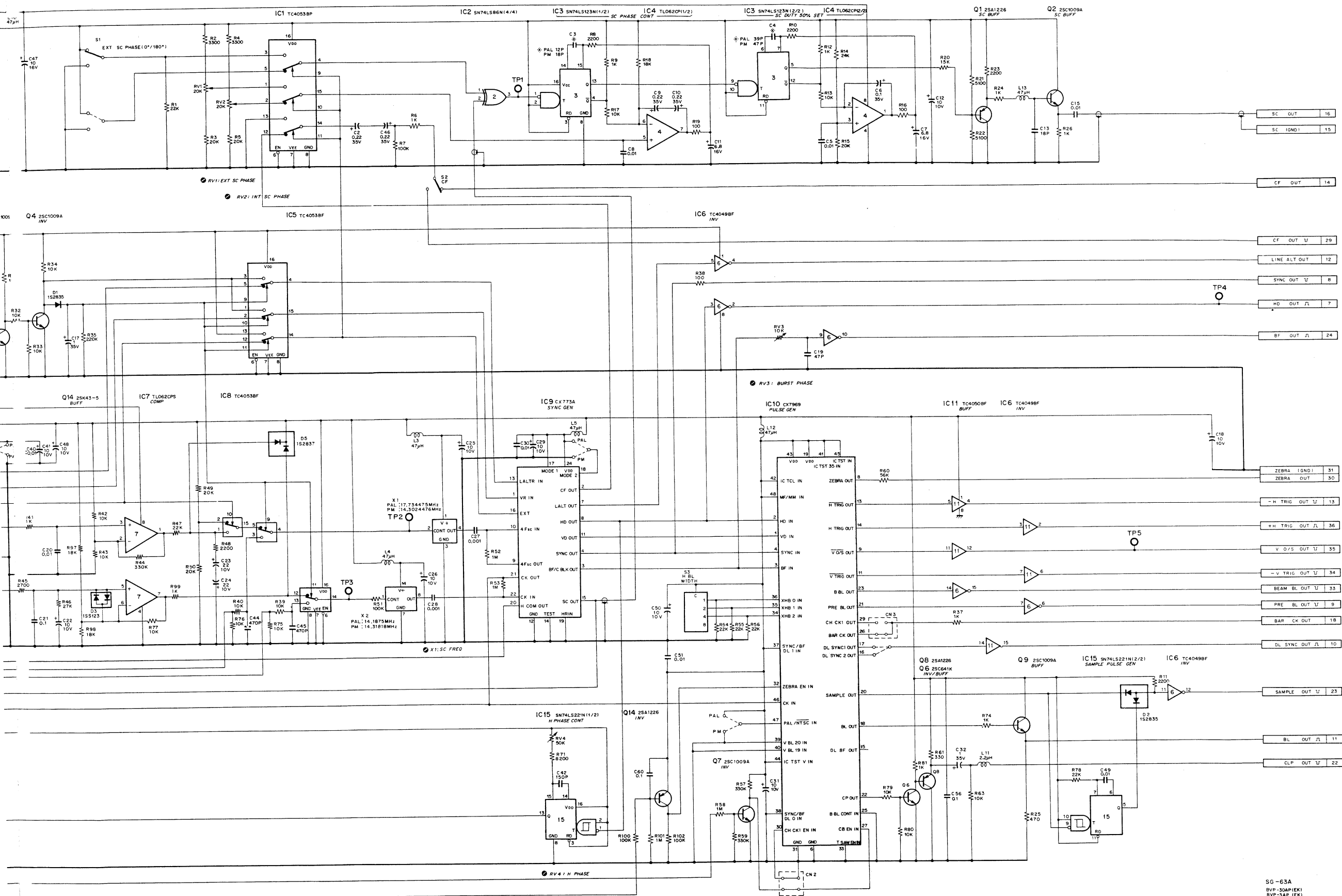
NOTE

| REF | CHANGE INFORMATION | SERIAL NO. |
|-----|--------------------|---------------------|
| 1 | R239 1M ADD | BVP-3A J. 16001~ |
| | | BVP-3AF EX. 22001~ |
| | | BVP-3AN J. 10101~ |
| | | BVP-3AS AC. 3011~ |
| | | BVP-30 UC. 80401~ |
| | | J. 10111~ |
| | | BVP-30AF EX. 10001~ |
| 2 | R240 470Ω ADD | BVP-3A J. 16001~ |
| | | UC. 41601~ |
| | | J. 16101~ |
| | | BVP-3AF EX. 22001~ |
| | | BVP-3AN J. 10101~ |
| | | BVP-3AS AC. 3011~ |
| | | BVP-30 UC. 80401~ |
| | | J. 10111~ |
| | | BVP-30AF EX. 10001~ |
| 3 | D32 10KΩ ADD | BVP-3A J. 16001~ |
| | | UC. 41601~ |
| | | J. 16101~ |
| | | BVP-3AF EX. 22001~ |
| | | BVP-3AN J. 10101~ |
| | | BVP-3AS AC. 3011~ |
| | | BVP-30 UC. 80401~ |
| | | J. 10111~ |
| | | BVP-30AF EX. 10001~ |
| 4 | R234 560Ω DELETE | BVP-3A J. 16001~ |
| | | UC. 41601~ |
| | | J. 16101~ |
| | | BVP-3AF EX. 22001~ |
| | | BVP-3AN J. 10101~ |
| | | BVP-3AS AC. 3011~ |
| | | BVP-30 UC. 80401~ |
| | | J. 10111~ |
| | | BVP-30AF EX. 10001~ |
| | | BVP-30AF EX. 10001~ |

AT-16
BVP-30 UC1
BVP-30AF EX1
BVP-3AN J1
BVP-3AS AC1
BVP-30 UC1

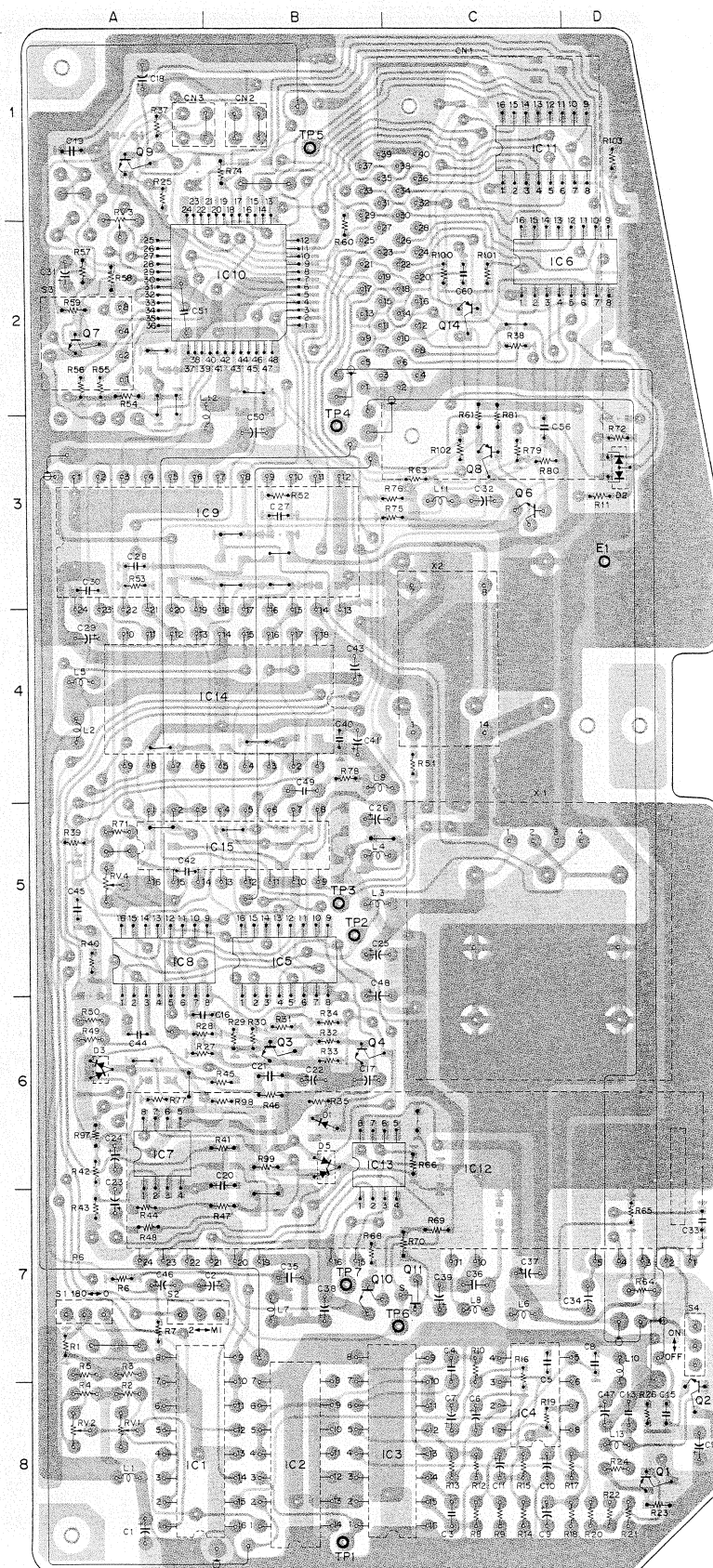
AT-16N
BVP-30N J1

5-55



SG-63A BOARD — SOLDERING SIDE —

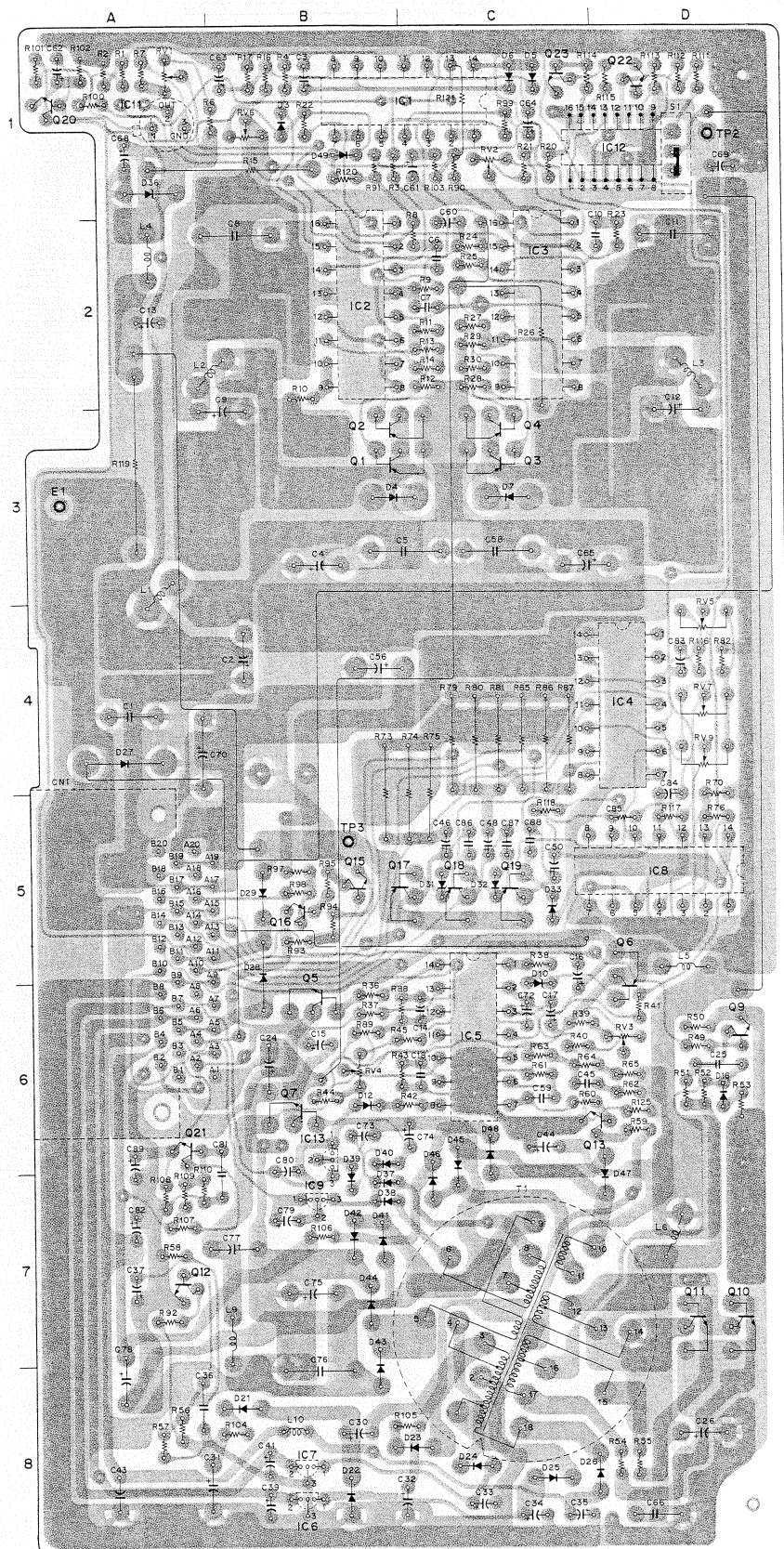
Parts. No. 1-608-892-25



| | |
|------|-----|
| CN2 | B-1 |
| CN3 | A-1 |
| D1 | B-6 |
| D2 | D-3 |
| D3 | A-8 |
| D5 | B-6 |
| E1 | D-3 |
| IC1 | A-8 |
| IC2 | B-8 |
| IC3 | C-8 |
| IC4 | C-8 |
| IC5 | B-5 |
| IC6 | D-2 |
| IC7 | A-9 |
| IC8 | A-5 |
| IC9 | B-3 |
| IC10 | B-2 |
| IC11 | C-1 |
| IC12 | C-6 |
| IC13 | B-6 |
| IC14 | B-4 |
| IC15 | B-5 |
| Q1 | D-8 |
| Q2 | D-8 |
| Q3 | B-6 |
| Q4 | B-6 |
| Q6 | C-3 |
| Q7 | A-2 |
| Q8 | C-3 |
| Q9 | A-1 |
| Q10 | B-7 |
| Q11 | C-7 |
| Q14 | C-2 |
| RV1 | A-8 |
| RV2 | A-8 |
| RV3 | A-1 |
| RV4 | A-5 |
| S1 | A-7 |
| S2 | A-7 |
| S3 | A-2 |
| S4 | D-7 |
| TP1 | B-8 |
| TP2 | B-5 |
| TP3 | B-5 |
| TP4 | B-3 |
| TP5 | B-1 |
| TP6 | C-7 |
| TP7 | B-7 |
| X1 | C-5 |
| X2 | C-4 |

PARTS NO. 1-612-381-12

PS-41 BOARD
POWER SUPPLY
ELECTRICAL FOCUS
— SOLDERING SIDE —



CN1 A-5

D3 B-1
D4 B-3
D5 C-1
D6 C-1
D7 C-3
D10 C-6
D12 B-6
D16 D-6
D21 B-8
D22 B-8
D23 D-8
D24 D-8
D25 D-8
D26 D-8
D27 A-4
D28 B-5
D29 B-5
D31 C-5
D32 C-5
D33 C-5
D36 A-1
D37 B-7
D38 B-7
D39 B-7
D40 B-6
D41 B-7
D42 B-7
D43 B-8
D44 B-7
D45 C-6
D46 B-6
D47 D-6
D48 C-5
D49 B-1

E1 A-3

IC1 B-1
IC2 B-2
IC3 C-2
IC4 D-4
IC5 C-5
IC6 B-8
IC7 B-8
IC8 D-5
IC9 B-7
IC11 A-1
IC12 D-1
IC13 B-8

Q1 B-3
Q2 B-3
Q3 C-3
Q4 C-3
Q5 B-6
Q6 D-5
Q7 B-6
Q9 D-6
Q10 D-7
Q11 D-7
Q12 A-7
Q13 C-6
Q15 B-5
Q16 B-5
Q17 B-5
Q18 C-5
Q19 C-5
Q20 A-1
Q21 A-6
Q22 D-1
Q23 C-1

RV1 A-1
RV2 C-1
RV3 D-6
RV4 B-6
RV5 D-4
RV6 B-1
RV7 D-4
RV9 D-4

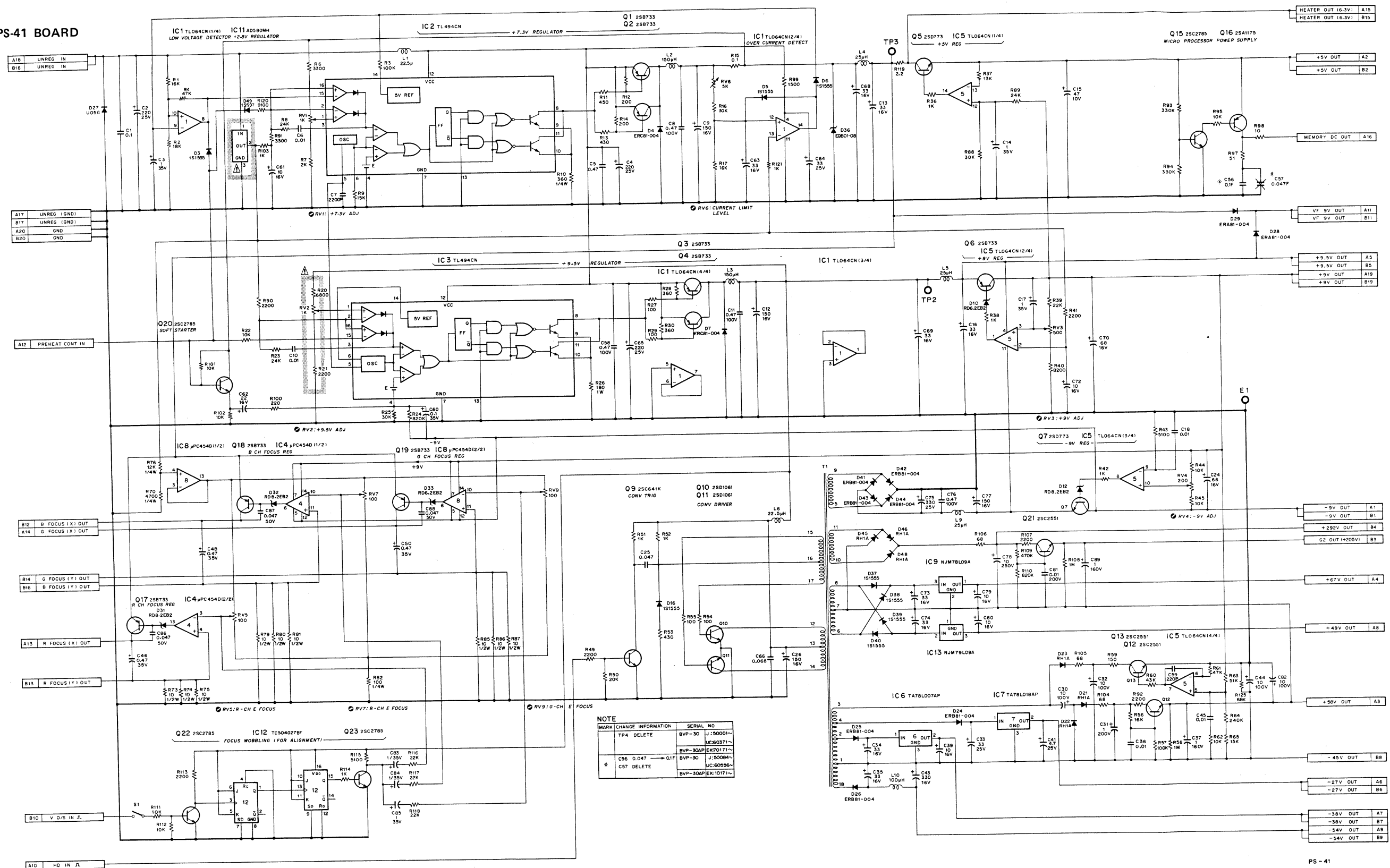
S1 D-1

TP2 D-1

TP3 B-5


PS-41 BOARD
SOLDERING SIDE
1-612-381-12
BVP-30(I,UCI)
BVP-30API(EI)
BVP-30PMBRT(I)

PS-41 BOARD



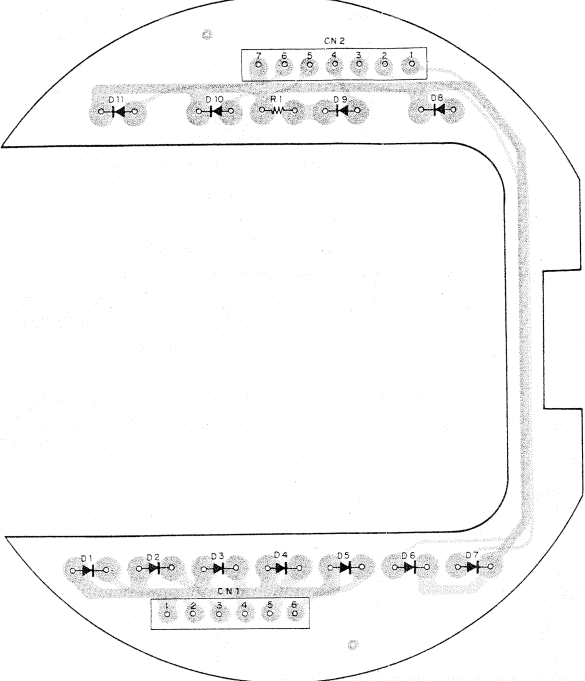
PS - 41
BVP - 30 (J)
BVP - 30 (UC)
BVP - 30AP (EK)
BVP - 30PM (BRZ)

NOTE:

The shaded and -marked components are critical to safety.
Replace only with same components as specified.

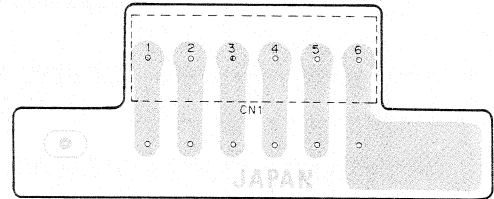
VIEW FINDER
LP-28 BOARD
MC-19 BOARD
SW-80 BOARD
VF-22 BOARD

LP-28 BOARD
-SOLDERING SIDE-



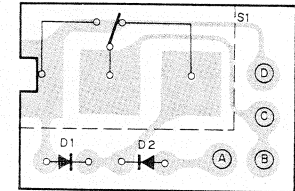
1-612-777-11
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)
BVP-30 (J,UC)
BVP-30AP (EK)
BVP-30PM (BRZ)

MC-19 BOARD
-SOLDERING SIDE-



MC-19 BOARD
1-606-127-12
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)
BVP-30 (J,UC)
BVP-30AP (EK)
BVP-30PM (BRZ)

SW-80 BOARD
-SOLDERING SIDE-

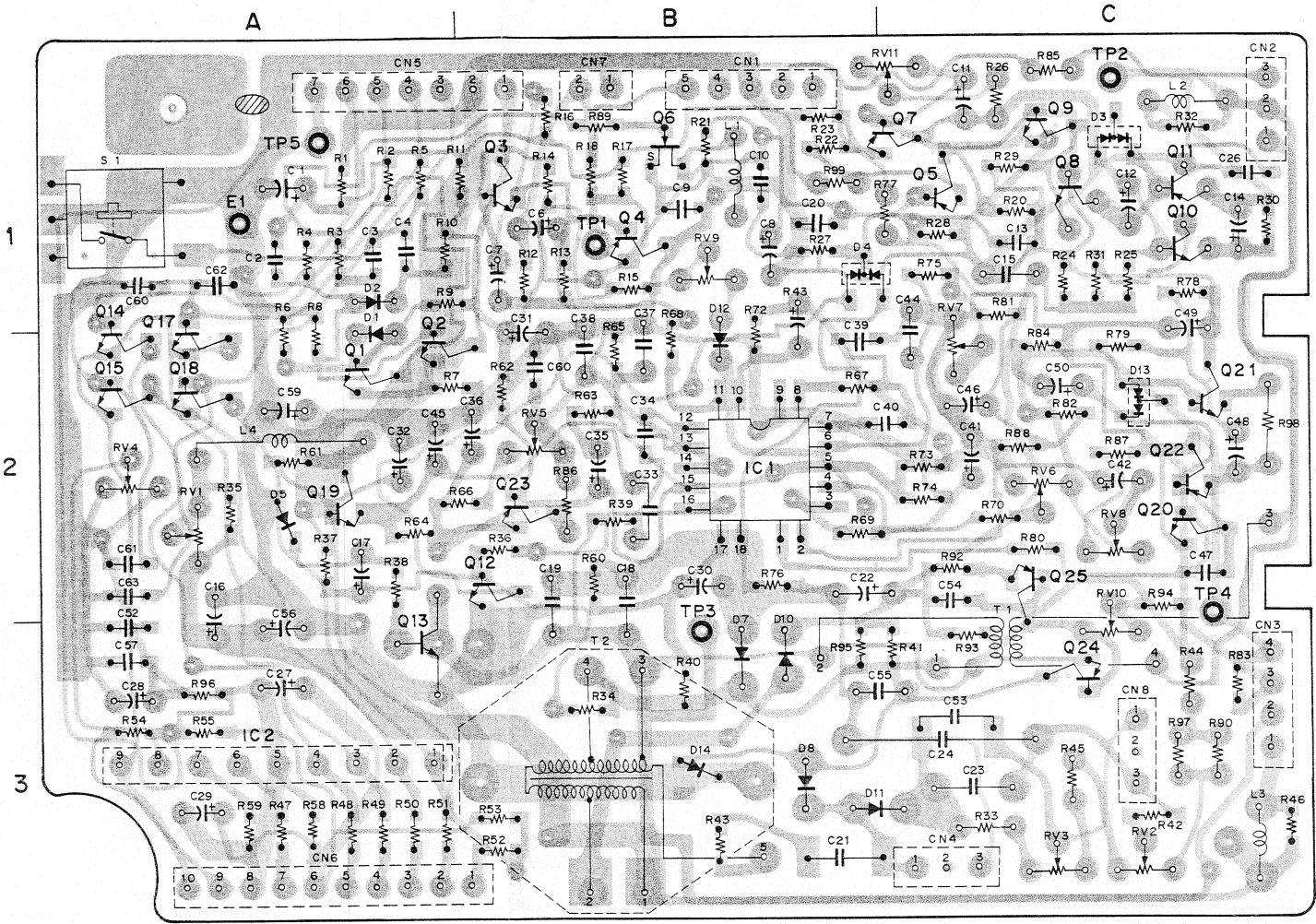


1-612-778-11
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)
BVP-30 (J,UC)
BVP-30AP (EK)
BVP-30PM (BRZ)

VF-22 BOARD
-SOLDERING SIDE-

VF-22 BOARD
-SOLDERING SIDE-

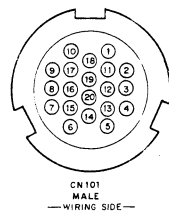
Parts. No. 1-612-611-13



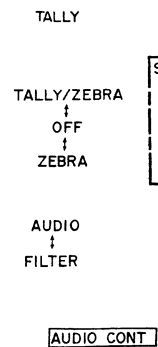
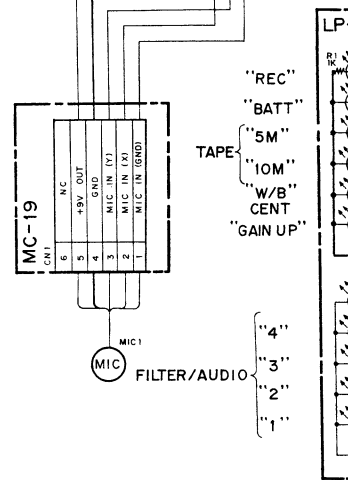
1-612-611-13
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)
BVP-30 (J,UC)
BVP-30AP (EK)
BVP-30PM (BRZ)

| | | | |
|-----|------|------|------|
| CN1 | B -1 | RV1 | A -2 |
| CN2 | C -1 | RV2 | C -3 |
| CN3 | C -3 | RV3 | C -3 |
| CN4 | C -3 | RV4 | A -2 |
| CN5 | A -1 | RV5 | B -2 |
| CN6 | A -3 | RV6 | C -2 |
| CN7 | B -1 | RV7 | C -2 |
| CN8 | C -3 | RV8 | C -2 |
| | | RV9 | B -1 |
| | | RV10 | C -3 |
| | | RV11 | C -1 |
| D1 | A -2 | S1 | A -1 |
| D2 | A -1 | | |
| D3 | C -1 | | |
| D4 | B -1 | TP1 | B -1 |
| D5 | A -2 | TP2 | C -1 |
| D7 | B -3 | TP3 | B -3 |
| D8 | B -3 | TP4 | C -2 |
| D10 | B -3 | TP5 | A -1 |
| D11 | B -3 | | |
| D12 | B -2 | | |
| D13 | C -2 | | |
| D14 | B -3 | | |
| E1 | A -1 | | |
| IC1 | B -2 | | |
| IC2 | A -3 | | |
| Q1 | A -2 | | |
| Q2 | A -2 | | |
| Q3 | B -1 | | |
| Q4 | B -1 | | |
| Q5 | C -1 | | |
| Q6 | B -1 | | |
| Q7 | C -1 | | |
| Q8 | C -1 | | |
| Q9 | C -1 | | |
| Q10 | C -1 | | |
| Q11 | C -1 | | |
| Q12 | B -2 | | |
| Q13 | A -3 | | |
| Q14 | A -2 | | |
| Q15 | A -2 | | |
| Q17 | A -2 | | |
| Q18 | A -2 | | |
| Q19 | A -2 | | |
| Q20 | C -2 | | |
| Q21 | C -2 | | |
| Q22 | C -2 | | |
| Q23 | B -2 | | |
| Q24 | C -3 | | |
| Q25 | C -2 | | |

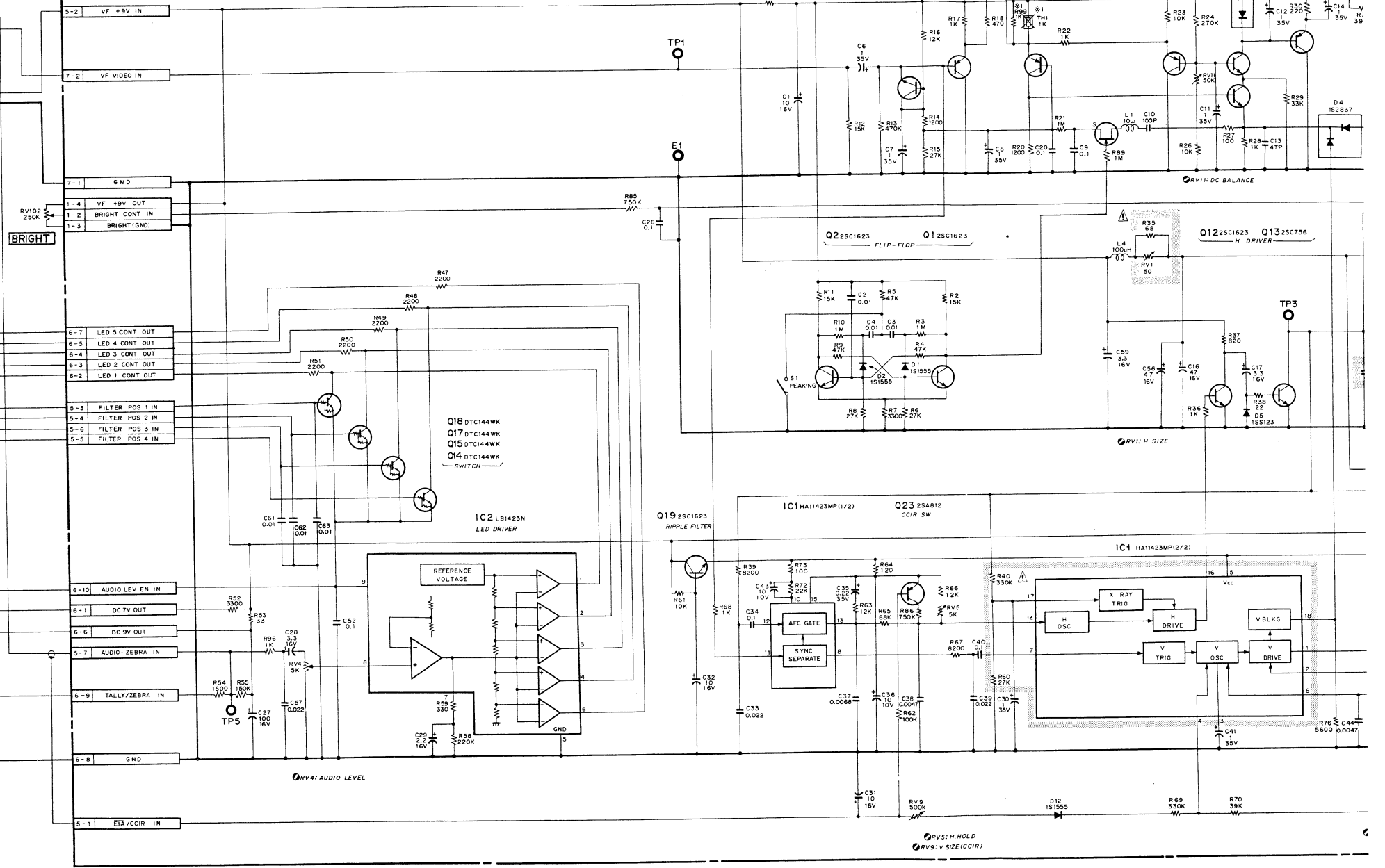
VIEWFINDER
LP-28 BOARD
MC-19 BOARD
SW-80 BOARD
VF-22 BOARD



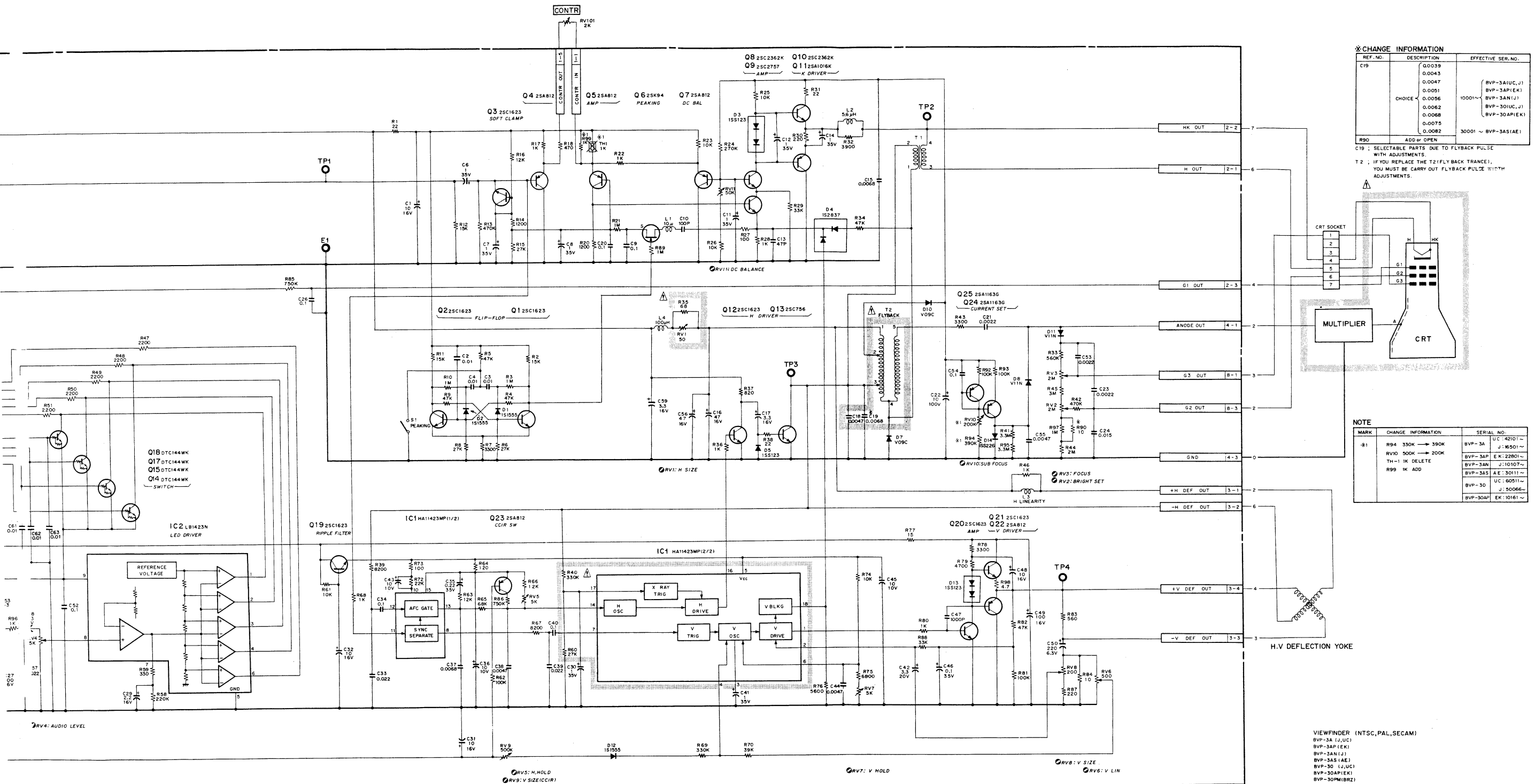
| | |
|----|-----------------|
| 1 | FILTER POS 1 IN |
| 2 | FILTER POS 2 IN |
| 3 | FILTER POS 3 IN |
| 4 | FILTER POS 4 IN |
| 5 | GAIN UP IND IN |
| 6 | MIC OUT (G) |
| 7 | WHT BAL IND IN |
| 8 | TAPE IND 1 IN |
| 9 | TAPE IND 2 IN |
| 10 | EIA/CCIR IN |
| 11 | AUDIO ZEBRA IN |
| 12 | VF VIDEO IN |
| 13 | AUDIO CONT OUT |
| 14 | MIC OUT (Y) |
| 15 | MIC OUT (X) |
| 16 | BATT ALM IN |
| 17 | REC/TALLY IN |
| 18 | VF +9V IN |
| 19 | GND |
| 20 | NC |



VF-22



NOTE:
The shaded and Δ -marked components are critical to safety.
Replace only with same components as specified.



BVP-30(J) up to 50065
BVP-30(UC) up to 60510
BVP-30AP(EK) up to 10160
BVP-3A(J) up to 16415
BVP-3A(UC) up to 42020
BVP-3AN(J) up to 10106
BVP-3AP(EK) up to 22710
BVP-3AS(AE) up to 30110

1-612-385-11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AEP)

1-612-379-13
BVP-301UC,J)
BVP-30AP(EK)
BVP-30PM(BRZ
BVP-3A1UC,J)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

1-612-250-11
CA-30/30L(J,UC)
CA-30P/30FL(EK)
CA-30PM(BRZ)
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

A 6x6 grid of numbers 1-9. A 3x3 sub-grid is circled, containing the numbers 1, 9, 8, 2, 0, 7, 3, 0, 6. A 'CNI' label is above the circled area.

CN-65 BOARD -13
 BVP-30 (J,UC)
 BVP-30A(IEK)
 BVP-30PM(BRZ)
 BVP-3A (J,UC)
 BVP-3AN(J)
 BVP-3AP(IEK)
 BVP-3AS(AEP)

SW-77,79 BOARD -11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

PARTS NO. 1-612-354-12

[illegible]

HN-30B BOARD
1-612-354-12
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

5-68(a)

BVP-30(J) 50066 AND HIGHER
BVP-30(UC) 60511 AND HIGHER
BVP-30AP(EK) 10161 AND HIGHER
BVP-3A(J) 16416 AND HIGHER
BVP-3A(UC) 42021 AND HIGHER
BVP-3A(J) 10107 AND HIGHER
BVP-3AP(EK) 22711 AND HIGHER
BVP-3AS(AE) 30111 AND HIGHER

1-612-385-11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AEP)

1-612-379-13
BVP-30(UC,J)
BVP-30AP(EK)
BVP-30PM(BRZ
BVP-3A(UC,J)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

1-612-250-11
CA-30/30L(J,UC)
CA-30P/30FL(EK)
CA-30PM(BRZ)
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

| | | | | | |
|---|---|----|---|---|---|
| 4 | 3 | 2 | 1 | 5 | 6 |
| 3 | 1 | 9 | 8 | 6 | |
| 4 | 2 | 10 | 7 | 5 | |
| | | | | | |

CNI

| | | |
|----|----|----|
| 10 | 9 | 8 |
| 2 | 1 | 3 |
| 3 | 11 | 12 |
| 4 | 6 | 5 |

CN - 65 BOARD - 13
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

SW-77,79 BOARD -1
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

PARTS NO. 1-612-354-13

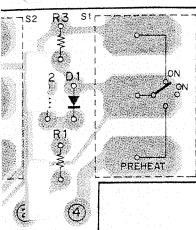
[illegible]

HN-30B BOARD
1-612-354-13
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

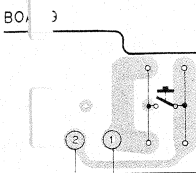
HN-30
-SO

HN-30B (1/2)
- SOLDERING SIDE -

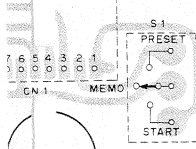
PARTS NO. 1-612-354-13



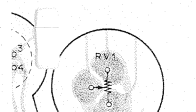
SW-207 BOARD
1-606-942-11
BVP-3A(J,UC)
BVP-3A(J)
BVP-3A(IEK)
BVP-3A(IEI)
BVP-3A(J,UC)
BVP-3A(IEK)
BVP-3A(IEI)



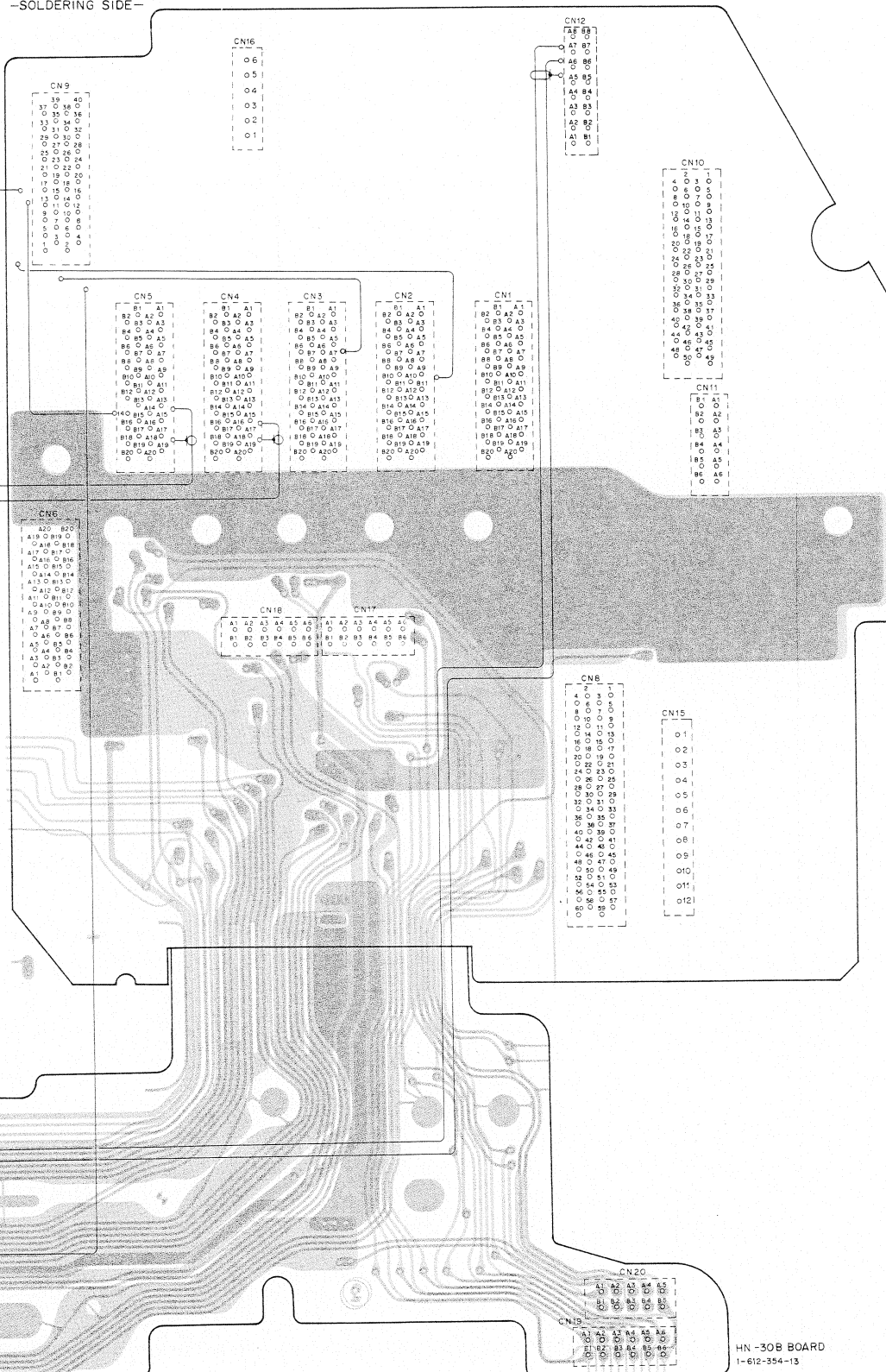
SW-77 BOARD



SW-77,79 BOARD -11
BVP-30(J,UC)
BVP-30(IEK)
BVP-30(IEI)
BVP-30(J,UC)
BVP-30(J)
BVP-30(IEK)
BVP-30(IEI)



HN-30B
-SOLDERING SIDE-



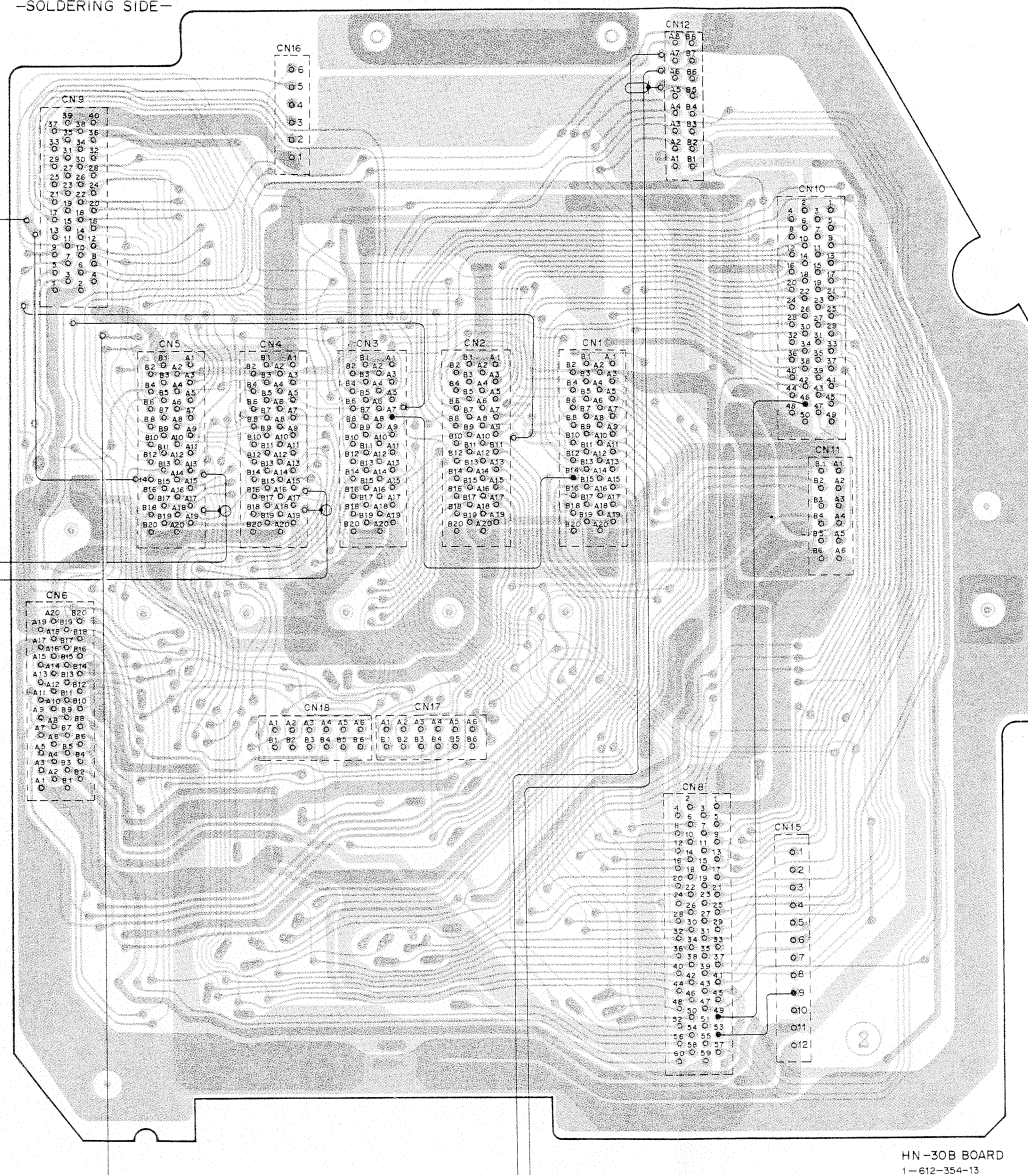
HN-30B BOARD
1-612-354-13
BVP-30(J,UC)
BVP-30(IEK)
BVP-30(IEI)

5-67(b)

HN-30B (1/2)
- SOLDERING SIDE -

PARTS NO. 1-612-354-13

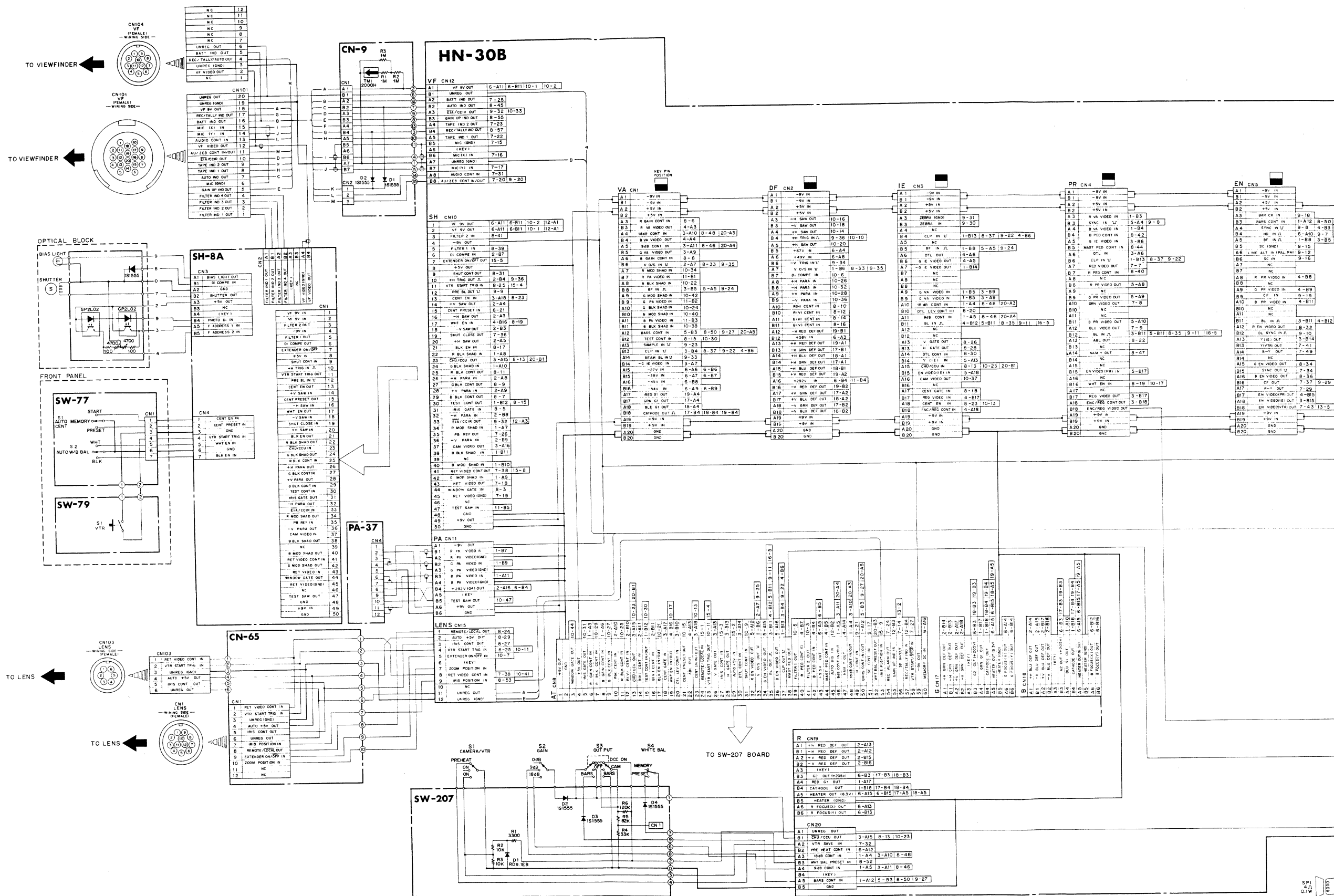
HN-30B
-SOLDERING SIDE-

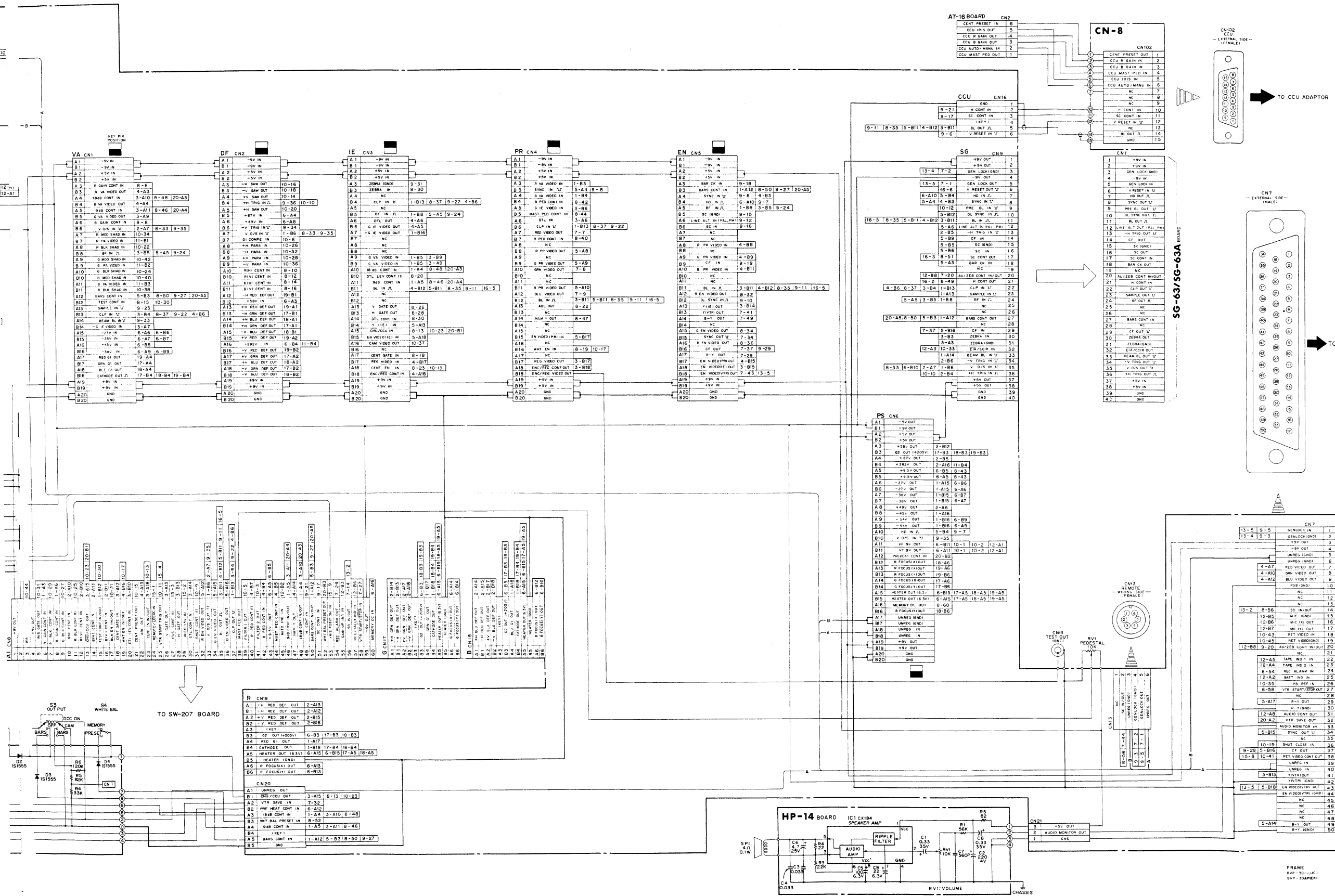


HN-30B BOARD
1-612-354-13
BVP-30(J,UC)
BVP-30(IEK)
BVP-30(IEI)

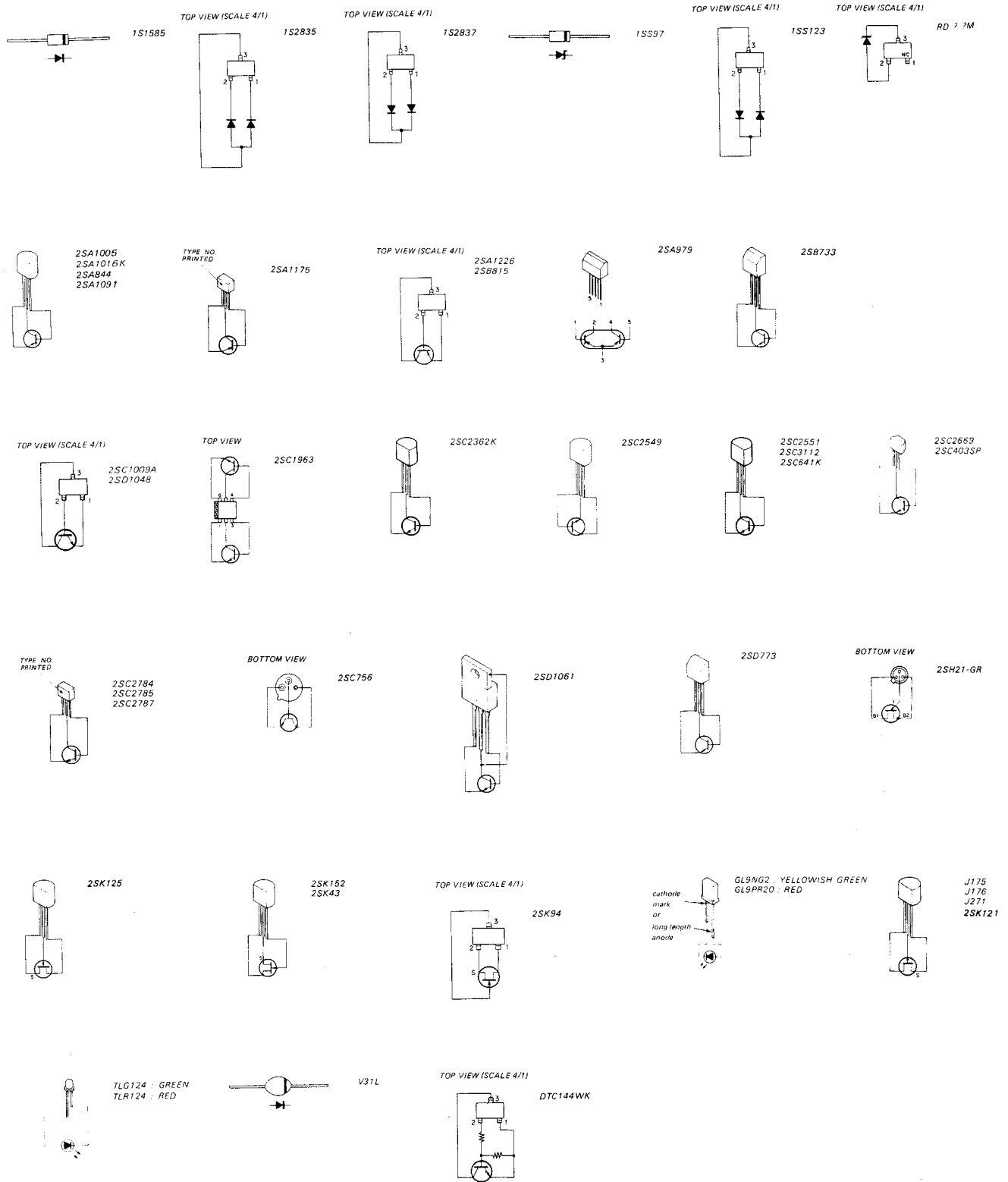
5-68(b)

FRAME



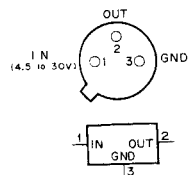


5-3. SEMICONDUCTOR

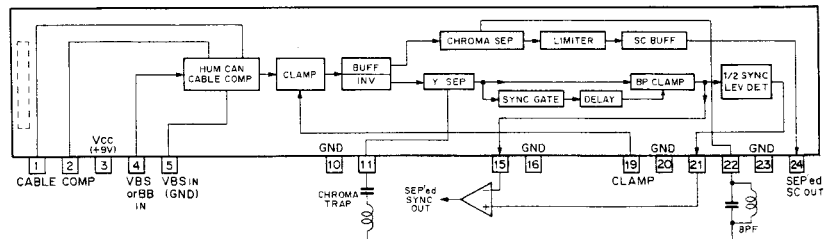


3

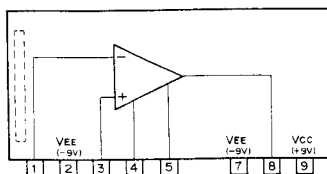
AD580M (ANALOG DEVICES)
REFERENCE VOLTAGE GENERATOR (2.5V)
— BOTTOM VIEW —



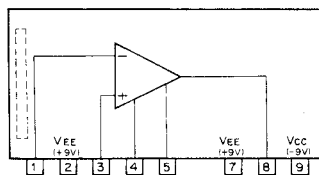
BX1040 (SONY)
SYNC SEPARATOR
— REAR VIEW —



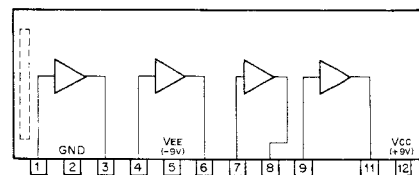
BX1054 (SONY)
VIDEO AMPLIFIER
— REAR VIEW —



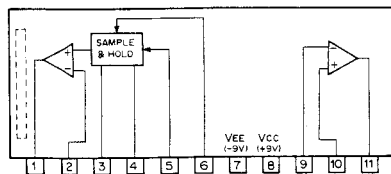
BX1055 (SONY)
VIDEO AMPLIFIER
— REAR VIEW —



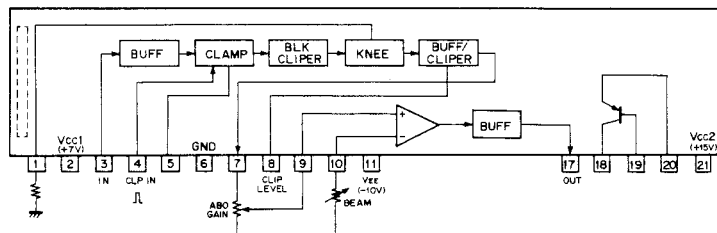
BX1080 (SONY)
AMPLIFIER (PHASE INVERTED)
— REAR VIEW —



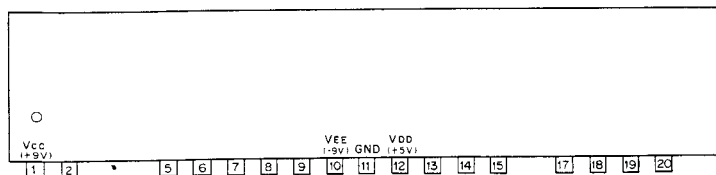
BX1082 (SONY)
OPERATIONAL AMPLIFIER
— REAR VIEW —



BX1219 (SONY)
AUTOMATIC BEAM OPTIMIZER
— REAR VIEW —

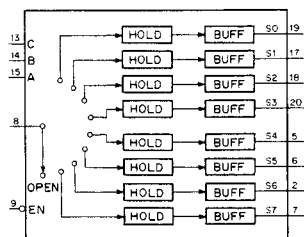


BX1179 (SONY)
8-CHANNEL SELECTABLE SAMPL HOLDER
— PRINTED SIDE —

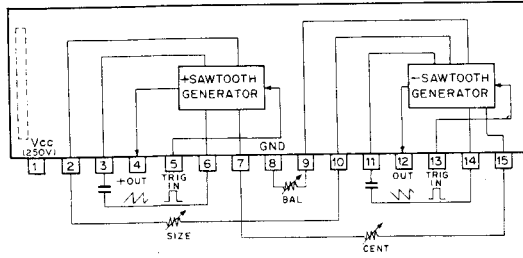


| EN | C | B | A | "ON" CHANNEL |
|----|---|---|---|--------------|
| 0 | 0 | 0 | 0 | S0 |
| 0 | 0 | 0 | 1 | S1 |
| 0 | 0 | 1 | 0 | S2 |
| 0 | 0 | 1 | 1 | S3 |
| 0 | 1 | 0 | 0 | S4 |
| 0 | 1 | 0 | 1 | S5 |
| 0 | 1 | 1 | 0 | S6 |
| 0 | 1 | 1 | 1 | S7 |
| 1 | X | X | X | OPEN |

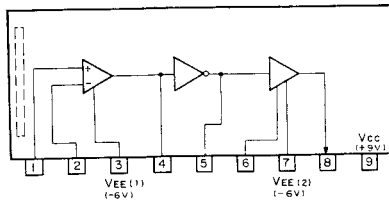
0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE



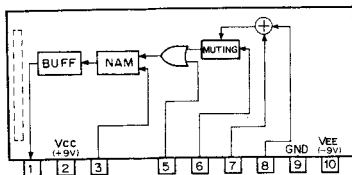
BX1277 (SONY)
POSITIVE/NEGATIVE DEFLECTION PULSE GENERATOR
— REAR VIEW —



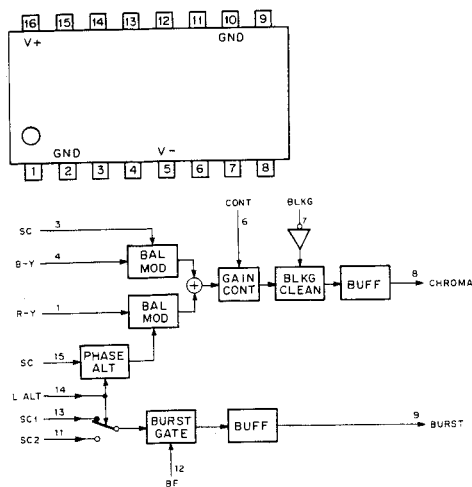
BX315 (SONY)
VIDEO OUTPUT AMPLIFIER (PHASE INVERTED)
— REAR VIEW —



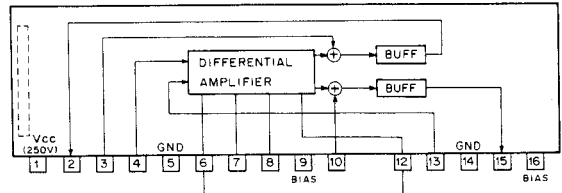
BX3933 (SONY)
— REAR VIEW —



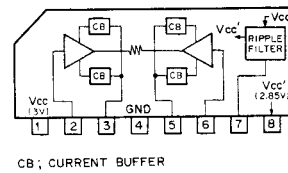
CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
— TOP VIEW —



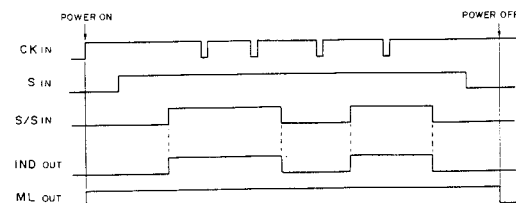
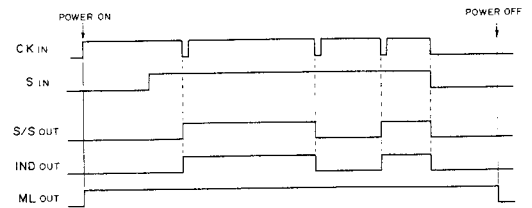
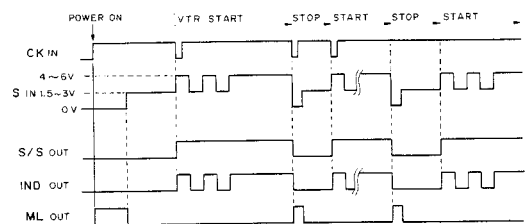
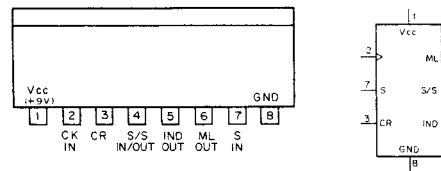
BX1278 (SONY)
REGISTRATION CORRECTOR
— REAR VIEW —



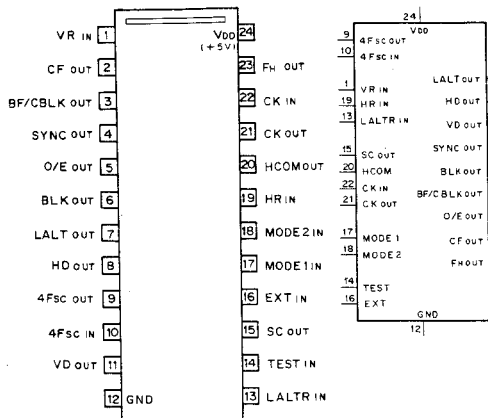
CX184 (SONY)
AUDIO POWER AMP/RIPPLE FILTER
— SIDE VIEW —



CX518 (SONY)
INTERFACE CIRCUIT BETWEEN VTR AND CAMERA
— SIDE VIEW —



CX773A (SONY)
C-MOS SYNC GENERATOR (NTSC, PAL-M, PAL, SECAM)
— TOP VIEW —



O/E : ODD/EVEN FIELD
CF : COLOR FRAME PULSE
HCOM : H COMPARATOR

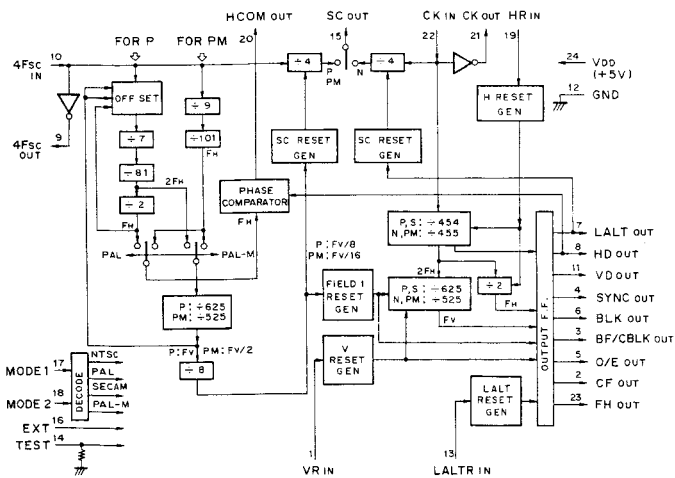
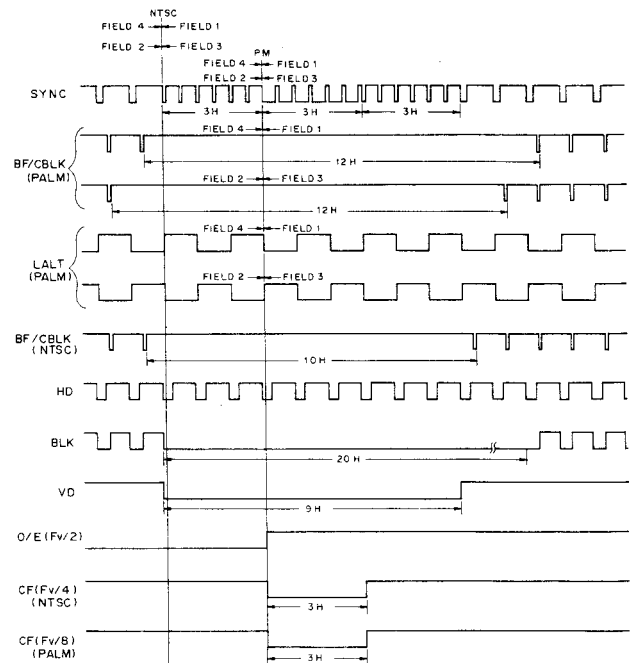
| SYSTEM | 4FSC | CLOCK |
|--------|-------------|--------|
| NTSC | 910 FH | 910 FH |
| PAL | 1135 FH+2FV | 908 FH |
| PALM | 909 FH | 910 FH |
| SECAM | | 908 FH |

| MODE1 | MODE2 | SYSTEM |
|-------|-------|--------|
| 0 | 0 | NTSC |
| 0 | 1 | SECAM |
| 1 | 0 | PALM |
| 1 | 1 | PAL |

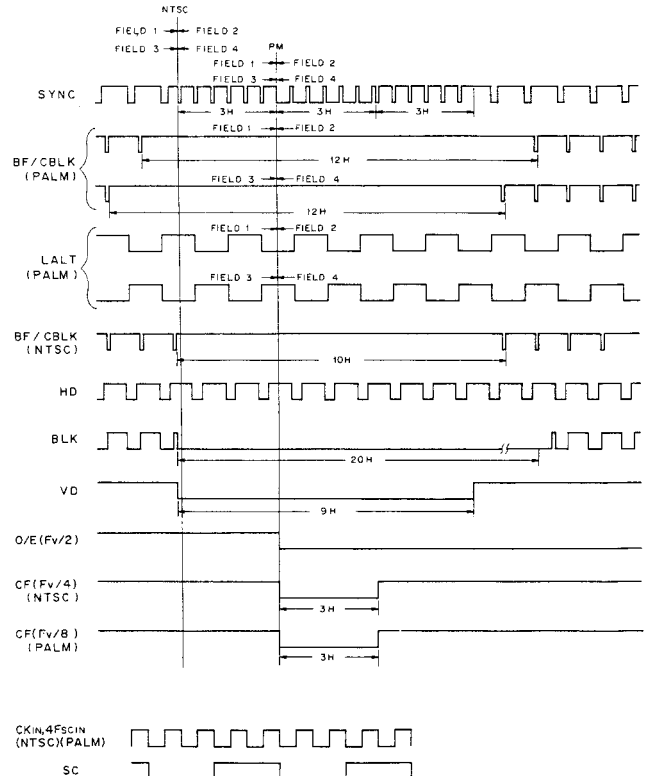
| EXT | TEST | FUNCTION |
|-----|------|----------|
| 0 | 0 | INTERNAL |
| 0 | 1 | INVALID |
| 1 | 0 | EXT |
| 1 | 1 | TEST |

0 : LOW LEVEL (GND)
1 : HIGH LEVEL (VDD)
TEST "0": OPEN (INTERNALLY PULLED DOWN)

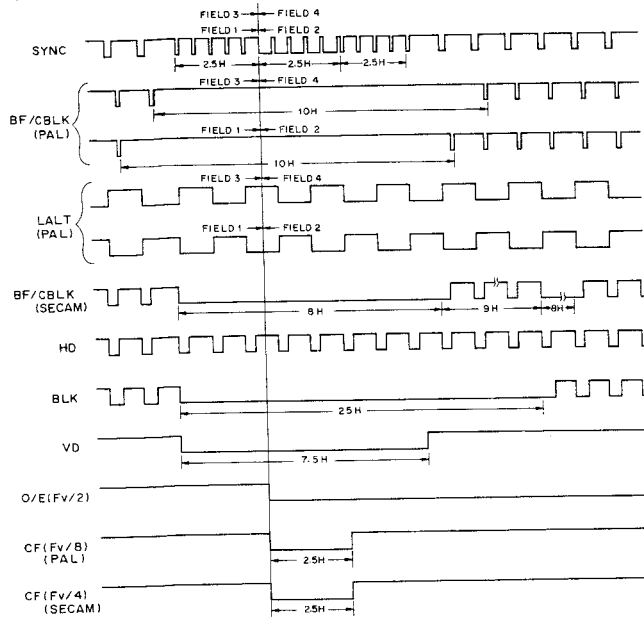
NTSC, PAL-M (FIELD 1,3)



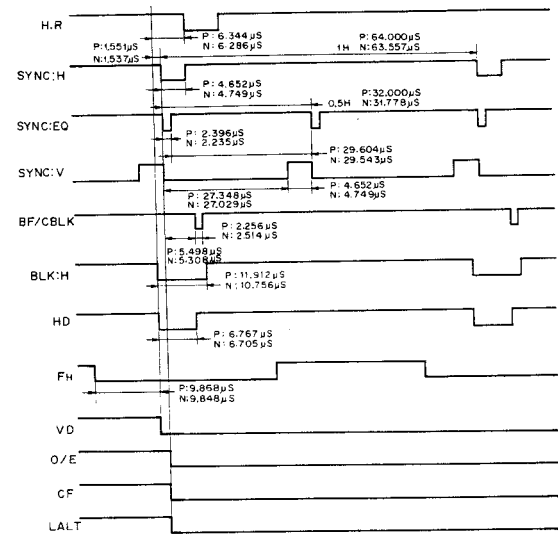
NTSC, PAL-M (FIELD 2,4)



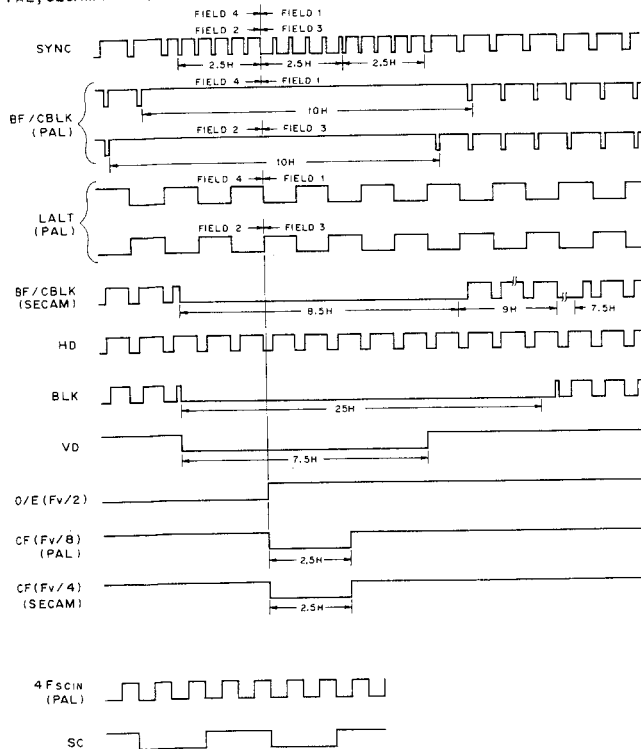
PAL, SECAM (FIELD 4,2)



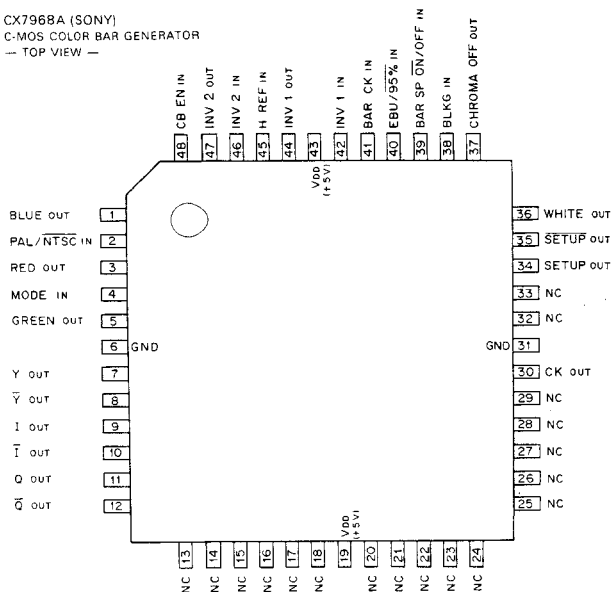
P: PAL, SECAM
N: NTSC, PALM



PAL, SECAM (FIELD 1,3)



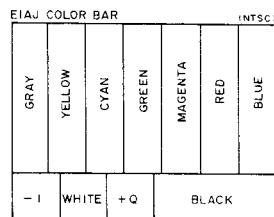
CX7968A (SONY)
C-MOS COLOR BAR GENERATOR
— TOP VIEW —



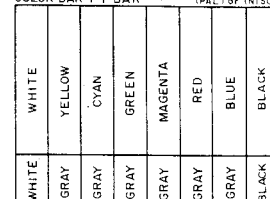
| INPUT | | | | FUNCTION |
|----------|------|---------|--------|----------------------|
| PAL/NTSC | MODE | EBU/95% | BAR SP | |
| 0 | 0 | 0 | 0 | EIAJ COLOR BAR |
| 0 | 0 | 0 | 1 | FULL FIELD COLOR BAR |
| 0 | 0 | 1 | 0 | INHIBIT |
| 0 | 0 | 1 | 1 | INHIBIT |
| 0 | 1 | 0 | 0 | EIAJ COLOR BAR |
| 0 | 1 | 0 | 1 | FULL FIELD COLOR BAR |
| 0 | 1 | 1 | 0 | SMPTE COLOR BAR |
| 0 | 1 | 1 | 1 | COLOR BAR + Y BAR |
| 1 | 0 | 0 | 0 | 95% COLOR BAR |
| 1 | 0 | 0 | 1 | INHIBIT |
| 1 | 0 | 1 | 0 | EBU COLOR BAR |
| 1 | 0 | 1 | 1 | INHIBIT |
| 1 | 1 | 0 | 0 | 95% COLOR BAR |
| 1 | 1 | 0 | 1 | COLOR BAR + Y BAR |
| 1 | 1 | 1 | 0 | EBU COLOR BAR |
| 1 | 1 | 1 | 1 | INHIBIT |

0, LOW LEVEL
1, HIGH LEVEL

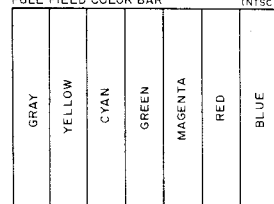
0 COLOR BAR PATTERN



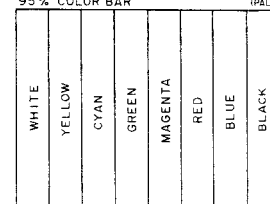
COLOR BAR + Y BAR (PAL or NTSC)



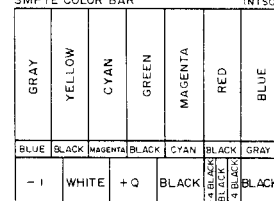
FULL FIELD COLOR BAR (NTSC)



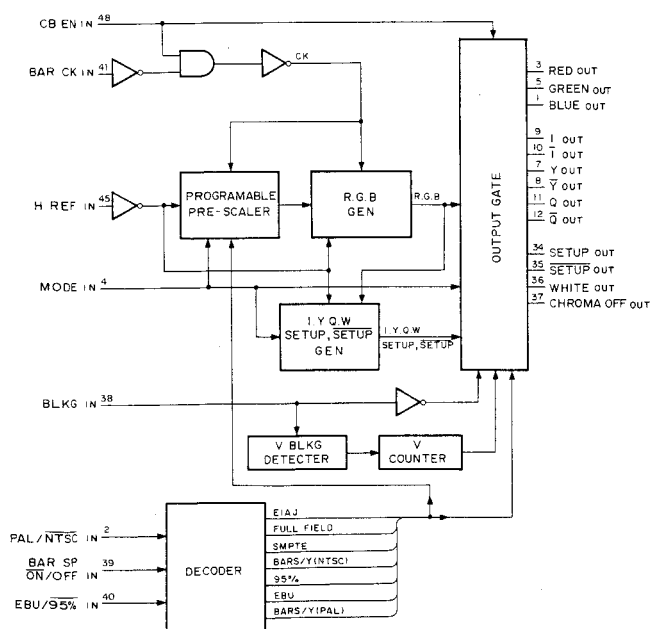
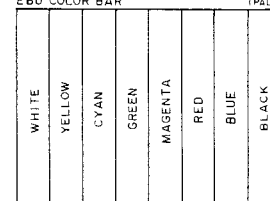
95% COLOR BAR (PAL)



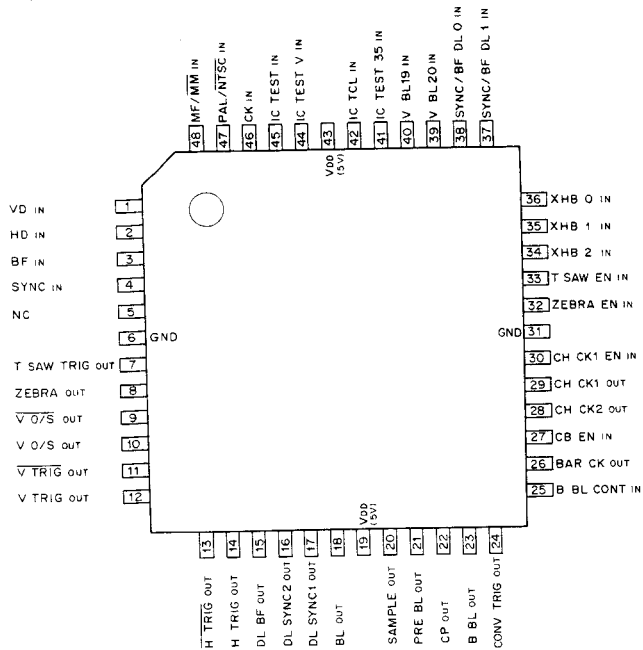
SMPTE COLOR BAR (NTSC)



EBU COLOR BAR (PAL)



CX7969 (SONY)
C-MOS PULSE GENERATOR
— TOP VIEW —



1. SYSTEM DESIGNATION

| INPUT | SYSTEM |
|-------------|------------|
| PAL/NTSC IN | |
| 1 | PAL, SECAM |
| 0 | NTSC, PALM |

2. TYPE OF TUBE

| INPUT | FUNCTION |
|----------|--------------|
| MF/MM IN | |
| 1 | MAG-STA TUBE |
| 0 | MAG-MAG TUBE |

3. V BLKG WIDTH (NTSC ONLY)

| INPUT | V BLKG WIDTH |
|-----------------|--------------|
| V BL 19 V BL 20 | |
| 1 X | 19H |
| 0 0 | 20H |
| 0 1 | 21H |

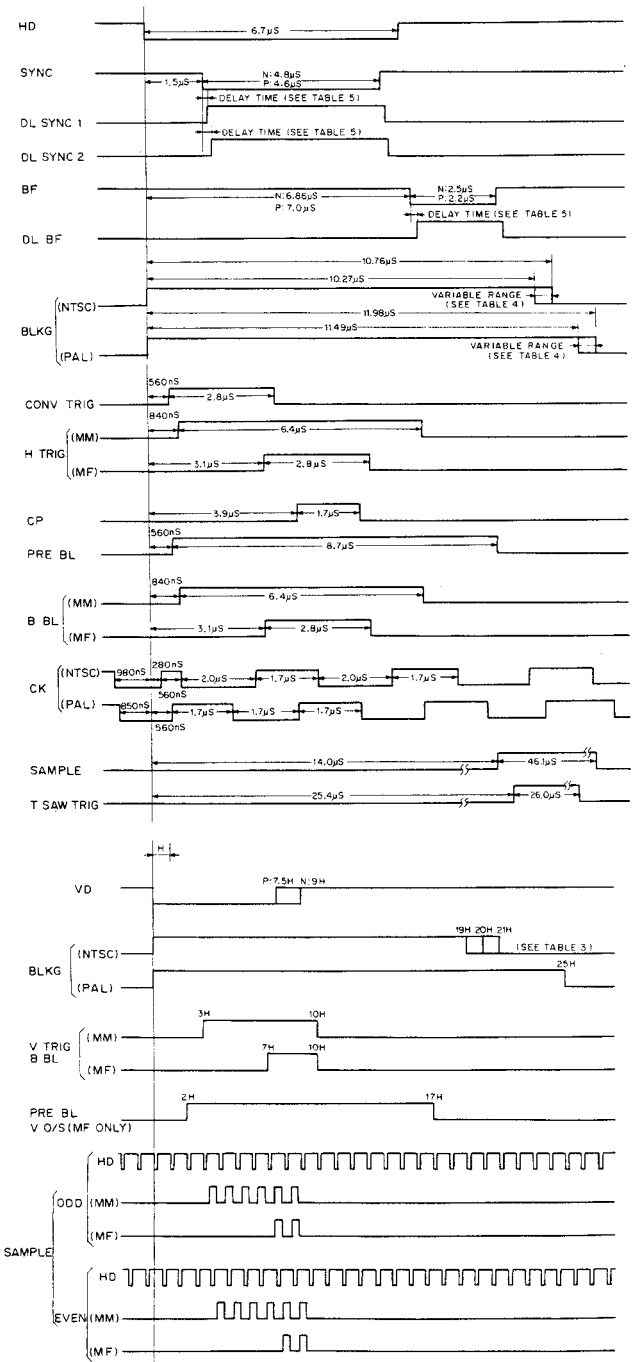
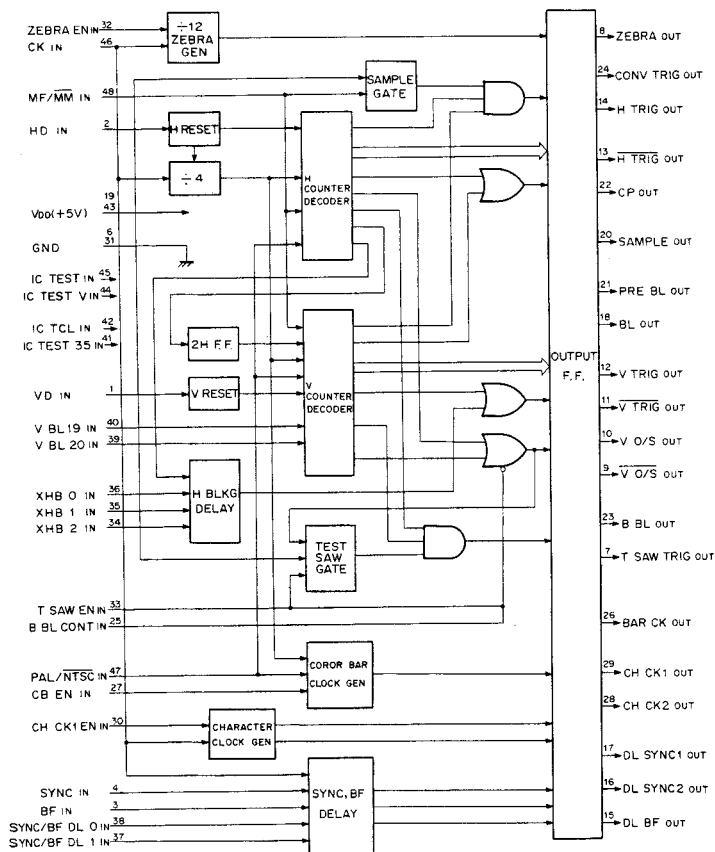
4. H BLKG WIDTH

| INPUT | BLKG WIDTH (μS) |
|----------------|----------------------|
| XHB2 XHB1 XHB0 | |
| 1 1 1 | 10.27 NTSC 11.49 PAL |
| 1 1 0 | 10.34 11.56 |
| 1 0 1 | 10.41 11.63 |
| 1 0 0 | 10.48 11.70 |
| 0 1 1 | 10.55 11.77 |
| 0 1 0 | 10.62 11.84 |
| 0 0 1 | 10.69 11.91 |
| 0 0 0 | 10.76 11.98 |

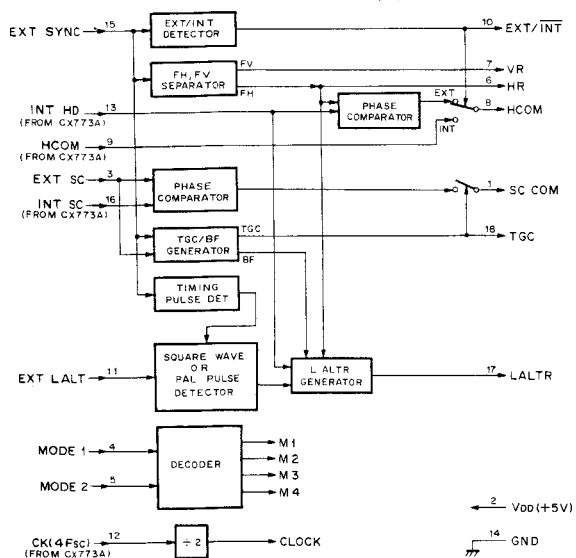
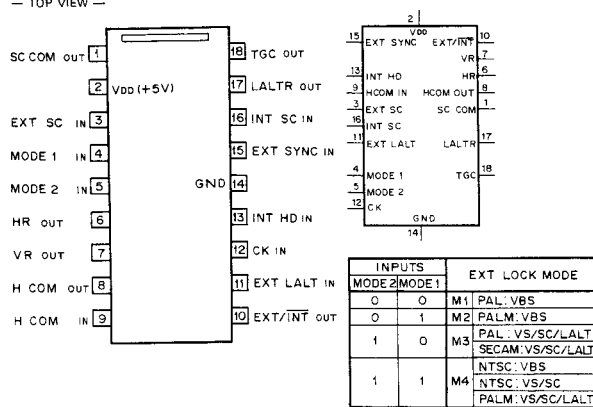
5. DELAY TIME

| INPUT | DELAY TIME (nS) |
|-------------------------|-----------------|
| SYNC/BF DL1 SYNC/BF DL2 | |
| 1 1 | 140 210 140 |
| 1 0 | 210 280 210 |
| 0 1 | 630 700 630 |
| 0 0 | 700 770 700 |

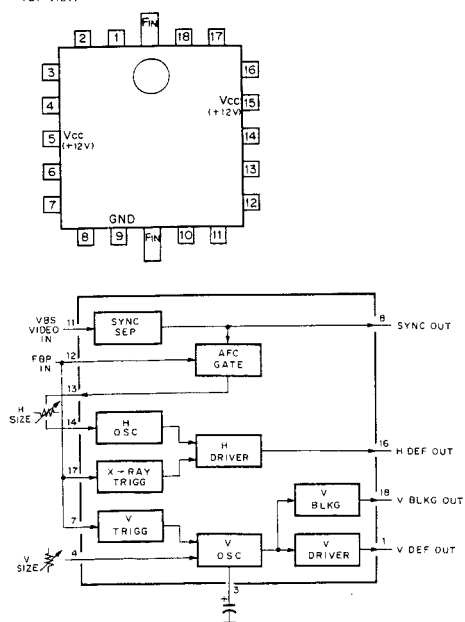
1; HIGH LEVEL
0; LOW LEVEL
X; DON'T CARE



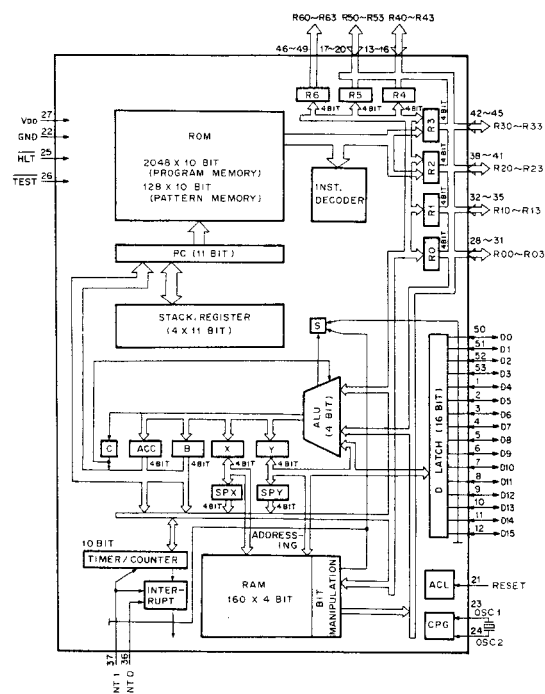
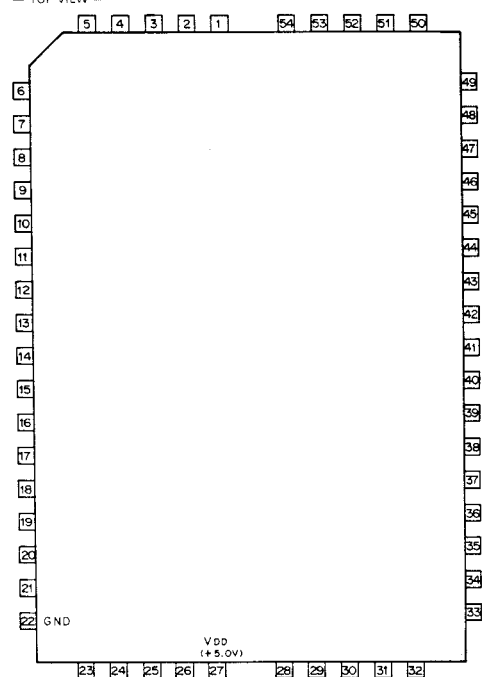
CX7903 (SONY)
C-MOS GENLOCK DRIVER FOR CX773A
— TOP VIEW —



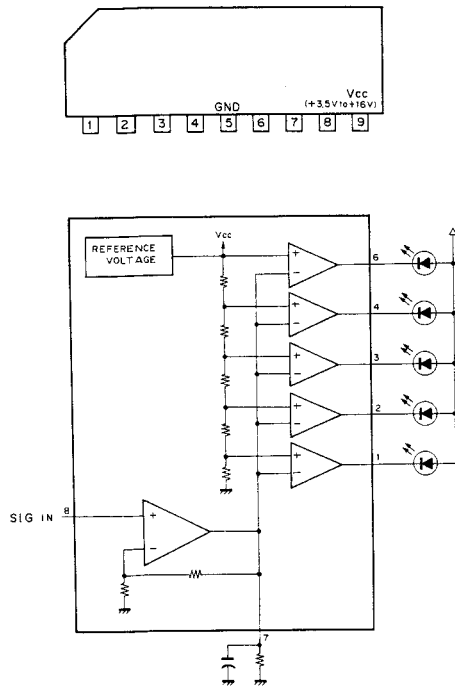
HA11423MP (HITACHI) FLAT PACKAGE
TV/H/V SYNC SIGNAL PROCESSOR
— TOP VIEW —



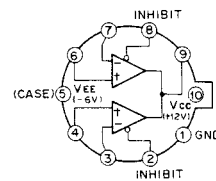
HD44820B27 (HITACHI) FLAT PACKAGE
C-MOS 4-BIT MICROPROCESSOR
— TOP VIEW —



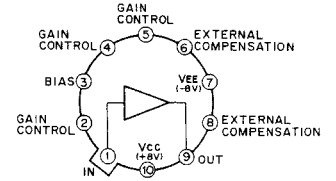
LB1423N (SANYO)
LED DRIVER FOR AC/DC LEVEL METER
— SIDE VIEW —



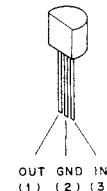
LM711CH (NS)
DUAL, DIFFERENTIAL VOLTAGE COMPARATOR
— BOTTOM VIEW —



MC1454G (MOTOROLA)
POWER AMPLIFIER (1W)
— BOTTOM VIEW —

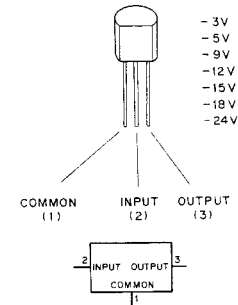


NJM78L7A (JRC)
VOLTAGE REGULATOR



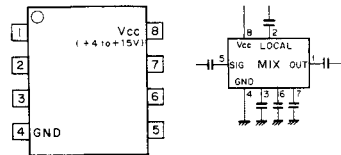
- 2V NJM78L02A
- 5V NJM78L05A
- 6V NJM78L06A
- 8V NJM78L08A
- 9V NJM78L09A
- 12V NJM78L12A
- 15V NJM78L15A

NJM79L7A (JRC)
NEGATIVE VOLTAGE REGULATOR (40mA)
— FRONT VIEW —

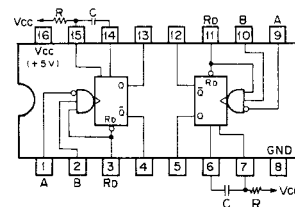


- 3V NJM79L03A
- 5V NJM79L05A
- 9V NJM79L09A
- 12V NJM79L12A
- 15V NJM79L15A
- 18V NJM79L18A
- 24V NJM79L24A

SN16913P (TI)
BALANCED MIXER
— TOP VIEW —



SN74LS123N (TI)
TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
— TOP VIEW —



| INPUTS | OUTPUTS |
|-------------------------|---------|
| R _D A B Q Q̄ | |
| 0 X X 0 1 | |
| X 1 X 0 1 | |
| X X 0 0 1 | |
| 1 0 1 0 1 | |
| 1 1 1 1 1 | |
| 1 0 1 1 1 | |

OUTPUT PULSE WIDTH

$$T_w = 0.28 \left(1 + \frac{200}{R} \right) CR$$

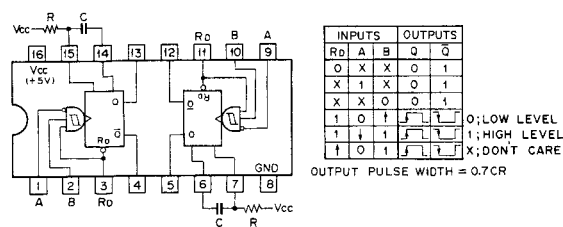
$$T_w = 0.33 \left(1 + \frac{200}{R} \right) CR$$

$$T_w = 0.25 \left(1 + \frac{200}{R} \right) CR$$

$$T_w = 0.29 \left(1 + \frac{200}{R} \right) CR$$

$$T_w = 0.45 CR$$

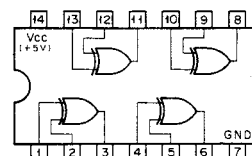
SN74LS221N (TI)
TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
— TOP VIEW —



| INPUTS | OUTPUTS |
|-------------------------|---------|
| R _D A B Q Q̄ | |
| 0 X X 0 1 | |
| X 1 X 0 1 | |
| X X 0 0 1 | |
| 1 0 1 0 1 | |
| 1 1 1 1 1 | |
| 1 0 1 1 1 | |

OUTPUT PULSE WIDTH = 0.7CR

SN74LS86N (TI)
TTL EXCLUSIVE OR GATE
— TOP VIEW —

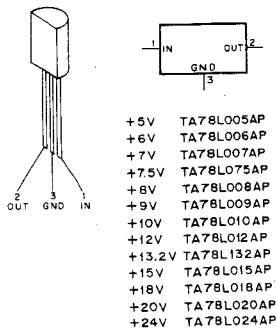


$$Y = A \oplus B = A \cdot \bar{B} + \bar{A} \cdot B$$

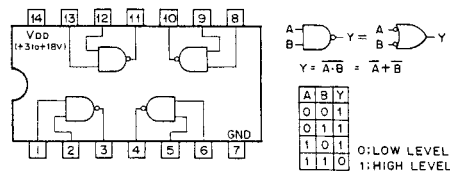
| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

3

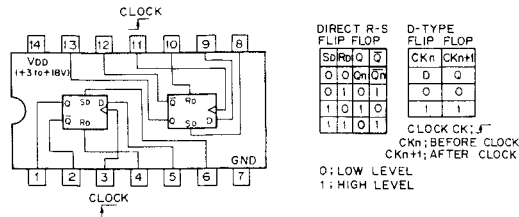
TA78L??AP (TOSHIBA)
VOLTAGE REGULATOR



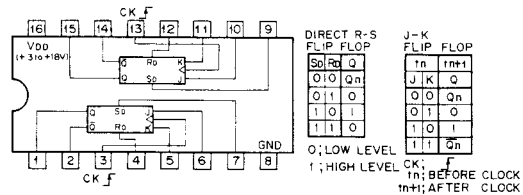
TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —



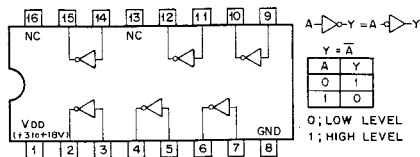
TC4013BF (TOSHIBA) FLAT PACKAGE
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —



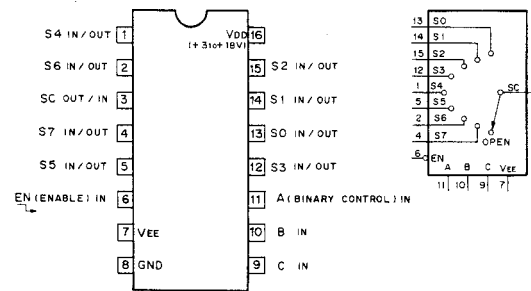
TC504027BF (TOSHIBA)
C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET
— TOP VIEW —



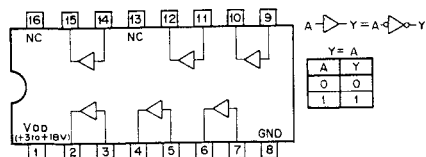
TC4049BF (TOSHIBA) FLAT PACKAGE
C-MOS INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —



TC4051BF (TOSHIBA) FLAT PACKAGE
C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



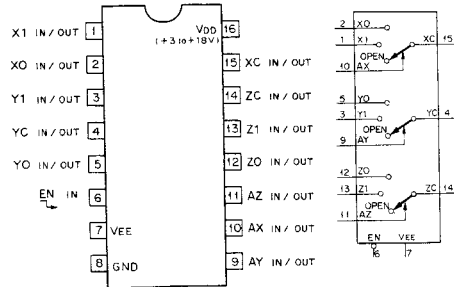
TC4050BF (TOSHIBA) FLAT PACKAGE
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —



| EN | C | B | A | "CN" CHANNEL |
|----|---|---|---|--------------|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 1 | 0 | 2 |
| 0 | 0 | 1 | 1 | 3 |
| 0 | 1 | 0 | 0 | 4 |
| 0 | 1 | 0 | 1 | 5 |
| 0 | 1 | 1 | 0 | 6 |
| 0 | 1 | 1 | 1 | 7 |
| 1 | X | X | X | OPEN |

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

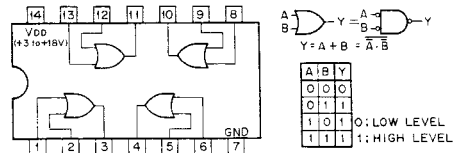
TC4053BF (TOSHIBA) FLAT PACKAGE
TC4053BP (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



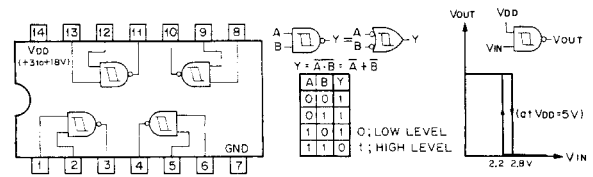
| CONT. INPUTS | ON |
|------------------|---------|
| EN : A (X, Y, Z) | CHANNEL |
| 0 | 0 |
| 0 | 1 |
| 1 | X |
| | OPEN |

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE.

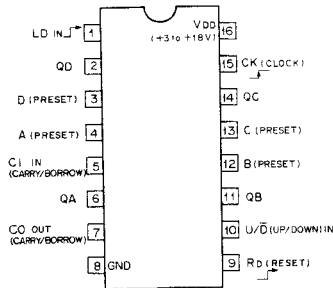
TC4071BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT OR GATE
— TOP VIEW —



TC4093BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND SCHMITT TRIGGER
— TOP VIEW —



TC4516BF (TOSHIBA) FLAT PACKAGE
μP04516BC (NEC)
C-MOS PRESETTABLE BINARY UP/DOWN COUNTER
— TOP VIEW —

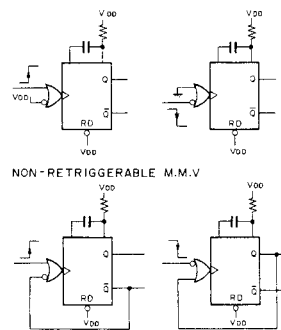
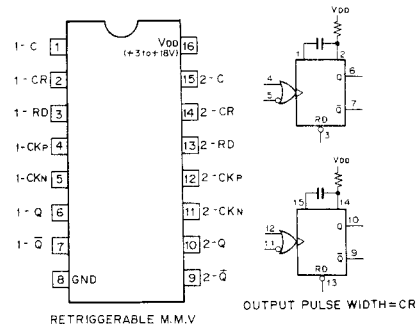


| INPUTS | | | | | OUTPUTS | | | |
|--------|----|----|----|-----|-------------------|----|----|----|
| CK | RD | LD | C1 | U/D | QD | QC | QB | QA |
| X | 1 | X | X | X | 0 | 0 | 0 | 0 |
| X | 0 | 1 | X | X | SET TO A, B, C, D | | | |
| F | 0 | 0 | 0 | 1 | COUNT UP | | | |
| F | 0 | 0 | 0 | 0 | COUNT DOWN | | | |
| 0 | 0 | 0 | X | X | NO CHANGE | | | |
| X | 0 | 0 | 1 | X | NO CHANGE | | | |

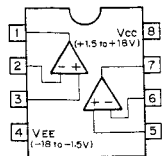
C0=L
C1=L A (DOWN-COUNT '0' OR UP-COUNT '15')

| COUNT | QD | QC | QB | QA |
|-------|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 |
| 11 | 1 | 0 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 |
| 13 | 1 | 1 | 0 | 1 |
| 14 | 1 | 1 | 1 | 0 |
| 15 | 1 | 1 | 1 | 1 |

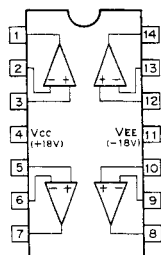
TC4538BF (TOSHIBA) FLAT PACKAGE
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



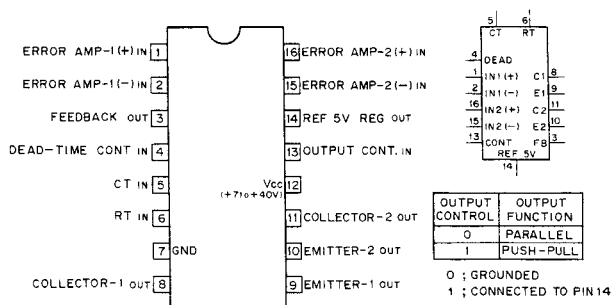
TL062CP (TI)
TL062CPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —



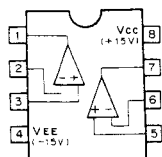
TL064CN (TI)
TL064CNS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —



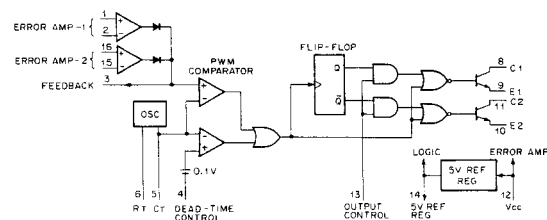
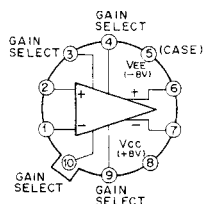
TL494CN (TI)
PWM POWER CONTROL
— TOP VIEW —



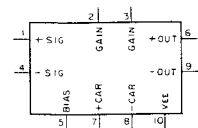
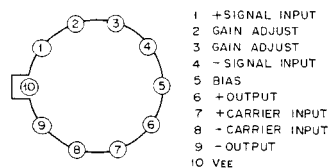
TL082CP (TI)
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —



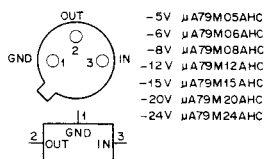
μA733HC (FSC)
DIFFERENTIAL VIDEO AMPLIFIER
— BOTTOM VIEW —



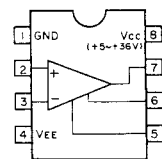
μA796HCA (FSC)
DOUBLE-BALANCED MOD/DEMOD
— BOTTOM VIEW —



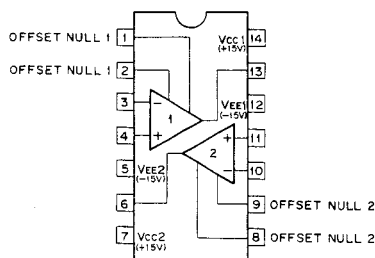
μA79M7?AHC (FSC)
NEGATIVE VOLTAGE REGULATOR (0.5A)
— BOTTOM VIEW —



μPC311G2 (NEC) FLAT PACKAGE
VOLTAGE COMPARATOR
— TOP VIEW — μPC311C




μPC454D (NEC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



SECTION 6 SPARE PARTS

6-1. PARTS INFORMATION

1. Safety Related Component Warning

Components identified by shading and -mark on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear as shown in this manual or in service bulletins and service manual supplements published by Sony.

2. Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accomodating the improved parts and/or engineering changes" or "standardization of genuine parts".

- This manual's exploded views and electrical spare parts list are indicating the parts numbers of "the standardized genuine parts at present".
- Regarding engineering parts changes in our engineering department, refer Sony service bulletins and service manual supplements.

3. **Printed Components in Bold-Face type** on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

4. Item with no part number and/or no description are not stocked because they are seldom required for routine service.





5. Abbreviation

| REF. NO. | DESCRIPTION | REF. NO. | DESCRIPTION | REF. NO. | DESCRIPTION |
|-----------|--------------------|-----------|-------------------|------------|-----------------------|
| C | CAPACITOR | IC | IC | RV | VARIABLE RESISTOR |
| CN | CONNECTOR | L | INDUCTOR | S | SWITCH |
| CV | VARIABLE CAPACITOR | LV | VARIABLE INDUCTOR | T | TRANSFORMER |
| D | DIODE | Q | TRANSISTOR | TH | THERMISTOR |
| DL | DELAY LINE | R | RESISTOR | THP | THERMISTOR (POSITIVE) |
| FL | FILTER | RP | RESISTOR BLOCK | X | OSCILLATOR |





All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.



6. Screw

TOTSU TYPE

| | B | BTP |
|--------|---|---|
| |   |   |
| 2.6x3 | 7-621-912-08 | |
| 2.6x5 | 7-621-912-28 | |
| (BZn) | 7-621-912-20 | |
| 2.6x6 | 7-621-912-30 | |
| 2.6x10 | 7-621-912-50 | |
| 3x4 | 7-686-622-09 | |
| 3x6 | 7-686-624-09 | |
| 3x8 | | 7-687-614-14 |
| 3x16 | 7-686-629-09 | |
| 4x6 | 7-686-634-04 | |
| (BZn) | | 7-686-634-09 |
| 4x16 | 7-686-639-09 | |

+ TYPE

| | +K | +P |
|--------|---|---|
| |   |   |
| 2x2.5 | | 7-627-553-27 |
| 2x4 | 7-627-452-28 | 7-627-553-47 |
| (BZn) | | 7-627-553-48 |
| 2.6x4 | | 7-627-556-38 |
| 2.6x12 | 7-621-592-30 | |
| 3x6 | 7-682-247-09 | |

| | BOLT, HEXAGON |
|--------|---|
| |   |
| 2.6x10 | 7-683-414-05 |
| 3x8 | 7-683-404-04 |

3, MICA

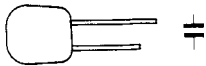
6-2. ELECTRICAL PARTS

Parts that are not listed in the "reference numbers order list" are shown in following table.
Reference numbers are omitted.

CAPACITOR

SILVERED MICA CAPACITOR

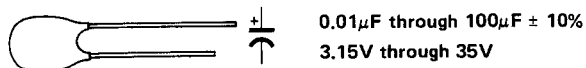
1 pF through 8.2 pF ± 0.5 pF 500V
10 pF through 680 pF $\pm 5\%$ 500V
750 pF $\pm 10\%$ 500V



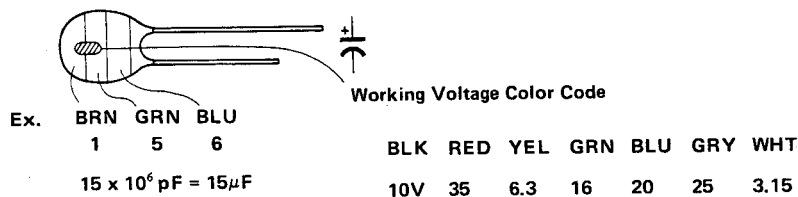
| Parts No. 1-107-□□□-00 | | | | | | | |
|------------------------|--------------------|-------|--------------------|-------|--------------------|--------|--------------------|
| Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- |
| 1 pF | 019 | 12 pF | 204 | 51 pF | 164 | 220 pF | 177 |
| 1.2 | 039 | 13 | 205 | 56 | 165 | 240 | 178 |
| 1.5 | 040 | 15 | 206 | 62 | 166 | 270 | 179 |
| 1.8 | 041 | 16 | 207 | 68 | 036 | 300 | 180 |
| 2.2 | 042 | 18 | 208 | 75 | 167 | 330 | 181 |
| 2.7 | 043 | 20 | 209 | 82 | 037 | 360 | 182 |
| 3.3 | 044 | 22 | 210 | 91 | 168 | 390 | 183 |
| 3.9 | 045 | 24 | 211 | 100 | 169 | 430 | 184 |
| 4.7 | 046 | 27 | 157 | 110 | 170 | 470 | 185 |
| 5.1 | 026 | 30 | 158 | 120 | 171 | 510 | 186 |
| 5.6 | 047 | 33 | 159 | 130 | 172 | 560 | 187 |
| 6.8 | 048 | 36 | 160 | 150 | 173 | 620 | 188 |
| 8.2 | 049 | 39 | 161 | 160 | 174 | 680 | 212 |
| 10 | 202 | 43 | 162 | 180 | 175 | 750 | 258 |
| 11 | 203 | 47 | 163 | 200 | 176 | | |

C, TANTALUM

TANTALUM CAPACITOR



NOTE: The value of the parts that are marked by * in the below table are indicated by color code. (to the value with $\pm 20\%$)



Parts No. 1-131-□□□-00

| Value | Parts No. -□□□- |
|-------|--------------------|
| 0.01μ | 35V *396 |
| 0.015 | 35 *397 |
| 0.022 | 35 *398 |
| 0.033 | 35 *399 |
| 0.047 | 35 *400 |
| 0.068 | 35 *401 |
| 0.1 | 35 *402 |
| 0.15 | 35 *403 |
| 0.22 | 35 *404 |
| 0.33 | 25 *409 |
| | 35 *405 |
| 0.47 | 20 *412 |
| | 35 *406 |
| 0.68 | 16 *415 |
| | 25 *410 |
| | 35 *407 |
| 1.0 | 10 *418 |
| | 20 *413 |

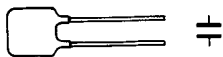
| Value | Parts No. -□□□- |
|-------|--------------------|
| 1.0μ | 35V *408 |
| 1.5 | 6.3 *421 |
| | 16 *416 |
| | 25 *411 |
| | 35 348 |
| 2.2 | 3.15 *424 |
| | 10 *419 |
| | 20 *414 |
| | 25 355 |
| | 35 349 |
| 3.3 | 6.3 *422 |
| | 16 *417 |
| | 20 362 |
| | 25 356 |
| | 35 350 |
| 4.7 | 3.15 *425 |
| | 10 *420 |
| | 16 369 |

| Value | Parts No. -□□□- |
|-------|--------------------|
| 4.7μ | 20V 363 |
| | 25 357 |
| | 35 351 |
| 6.8 | 6.3 *423 |
| | 10 376 |
| | 16 370 |
| | 20 364 |
| | 25 358 |
| | 35 352 |
| 10 | 3.15 *426 |
| | 6.3 383 |
| | 10 377 |
| | 16 371 |
| | 20 365 |
| | 25 359 |
| | 35 353 |
| 15 | 3.15 390 |
| | 6.3 384 |

| Value | Parts No. -□□□- |
|-------|--------------------|
| 15μ | 10V 378 |
| | 16 372 |
| | 20 366 |
| | 25 360 |
| 22 | 3.15 391 |
| | 6.3 385 |
| | 10 379 |
| | 16 373 |
| | 20 367 |
| 33 | 3.15 392 |
| | 6.3 386 |
| | 10 380 |
| | 16 374 |
| 47 | 3.15 393 |
| | 6.3 387 |
| | 10 381 |
| 68 | 3.15 394 |
| | 6.3 388 |
| 100 | 3.15 395 |

CERAMIC CHIP

CERAMIC CAPACITOR



47PF through 0.15μF 50V

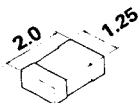
Parts No. 1-161-□□□-00

| Value | | Parts No. -□□□- |
|-------|----|--------------------|
| 47P | 5% | 855 |
| 51P | 5% | 476 |
| 56P | 5% | 477 |
| 62P | 5% | 478 |
| 68P | 5% | 457 |
| 75P | 5% | 479 |
| 82P | 5% | 458 |
| 91P | 5% | 480 |
| 100P | 5% | 459 |
| 120P | 5% | 460 |
| 150P | 5% | 461 |

| Value | | Parts No. -□□□- |
|--------|-----|--------------------|
| 180P | 5% | 462 |
| 220P | 5% | 463 |
| 270P | 5% | 464 |
| 330P | 5% | 465 |
| 390P | 5% | 466 |
| 470P | 5% | 467 |
| 560P | 5% | 468 |
| 680P | 5% | 469 |
| 820P | 5% | 470 |
| 0.001μ | 10% | 471 |

| Value | | Parts No. -□□□- |
|---------|-----|--------------------|
| 0.0015μ | 10% | 852 |
| 0.0022μ | 10% | 853 |
| 0.0033μ | 10% | 854 |
| 0.0047μ | 10% | 472 |
| 0.01μ | 10% | 473 |
| 0.022μ | 10% | 474 |
| 0.033μ | 10% | 475 |
| 0.047μ | 10% | 481 |
| 0.068μ | 10% | 482 |
| 0.1μ | 10% | 483 |
| 0.15μ | 10% | 484 |

CHIP CERAMIC CAPACITOR



220pF through 0.018μF(B) ± 10% 50WV

0.022μF through 0.068μF(F) $\begin{matrix} +80 \\ -20 \end{matrix}$ % 50WV

0.1μF(F) $\begin{matrix} +80 \\ -20 \end{matrix}$ % 25WV

Parts No. 1-163-□□□-00

| Value | Parts No. -□□□- |
|-------|--------------------|
| 100pF | — |
| 120 | — |
| 150 | — |
| 180 | — |
| 220 | 001 |
| 270 | 002 |
| 330 | 003 |
| 390 | 004 |
| 470 | 005 |
| 560 | 006 |
| 680 | 007 |
| 820 | 008 |

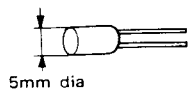
| Value | Parts No. -□□□- |
|---------|--------------------|
| 0.001μF | 009 |
| 0.0012 | 010 |
| 0.0015 | 011 |
| 0.0018 | 012 |
| 0.0022 | 013 |
| 0.0027 | 014 |
| 0.0033 | 015 |
| 0.0039 | 016 |
| 0.0047 | 017 |
| 0.0056 | 018 |
| 0.0068 | 019 |
| 0.0082 | 020 |

| Value | Parts No. -□□□- |
|--------|--------------------|
| 0.01μF | 021 |
| 0.012 | 022 |
| 0.015 | 023 |
| 0.018 | 024 |
| 0.022 | 033 |
| 0.027 | — |
| 0.033 | 034 |
| 0.039 | — |
| 0.047 | 035 |
| 0.056 | — |
| 0.068 | 036 |
| 0.082 | — |
| 0.1 | 038 |

INDUCTOR

MICRO INDUCTOR

1 μ H through 470 μ H
 $\pm 5\%$



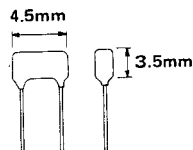
5mm dia

Parts No. 1-407-□□□-XX

| Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- |
|-----------|--------------------|-------------|--------------------|------------|--------------------|-------------|--------------------|
| 1 μ H | 178 | 4.7 μ H | 186 | 22 μ H | 161 | 100 μ H | 169 |
| 1.2 | 179 | 5.6 | 187 | 27 | 162 | 120 | 170 |
| 1.5 | 180 | 6.8 | 188 | 33 | 163 | 150 | 171 |
| 1.8 | 181 | 8.2 | 189 | 39 | 164 | 180 | 172 |
| 2.2 | 182 | 10 | 157 | 47 | 165 | 220 | 173 |
| 2.7 | 183 | 12 | 158 | 56 | 166 | 270 | 174 |
| 3.3 | 184 | 15 | 159 | 68 | 167 | 330 | 175 |
| 3.9 | 185 | 18 | 160 | 82 | 168 | 390 | 176 |
| | | | | | | 470 | 177 |

RESISTOR

METAL FILM RESISTOR



$\pm 1\%$, 1/8W
10 Ω through 33 k Ω

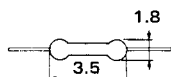
Parts No. 1-214-□□□-00

| Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- |
|-------------|--------------------|--------------|--------------------|---------------|--------------------|--------------|--------------------|
| 10 Ω | 509 | 100 Ω | 533 | 1.0k Ω | 557 | 10k Ω | 581 |
| 11 | 510 | 110 | 534 | 1.1 | 558 | 11 | 582 |
| 12 | 511 | 120 | 535 | 1.2 | 559 | 12 | 583 |
| 13 | 512 | 130 | 536 | 1.3 | 560 | 13 | 584 |
| 15 | 513 | 150 | 537 | 1.5 | 561 | 15 | 585 |
| 16 | 514 | 160 | 538 | 1.6 | 562 | 16 | 586 |
| 18 | 515 | 180 | 539 | 1.8 | 563 | 18 | 587 |
| 20 | 516 | 200 | 540 | 2.0 | 564 | 20 | 588 |
| 22 | 517 | 220 | 541 | 2.2 | 565 | 22 | 589 |
| 24 | 518 | 240 | 542 | 2.4 | 566 | 24 | 590 |
| 27 | 519 | 270 | 543 | 2.7 | 567 | 27 | 591 |
| 30 | 520 | 300 | 544 | 3.0 | 568 | 30 | 592 |
| 33 | 521 | 330 | 545 | 3.3 | 569 | 33 | 593 |
| 36 | 522 | 360 | 546 | 3.6 | 570 | | |
| 39 | 523 | 390 | 547 | 3.9 | 571 | | |
| 43 | 524 | 430 | 548 | 4.3 | 572 | | |
| 47 | 525 | 470 | 549 | 4.7 | 573 | | |
| 51 | 526 | 510 | 550 | 5.1 | 574 | | |
| 56 | 527 | 560 | 551 | 5.6 | 575 | | |
| 62 | 528 | 620 | 552 | 6.2 | 576 | | |
| 68 | 529 | 680 | 553 | 6.8 | 577 | | |
| 75 | 530 | 750 | 554 | 7.5 | 578 | | |
| 82 | 531 | 820 | 555 | 8.2 | 579 | | |
| 91 | 532 | 910 | 556 | 9.1 | 580 | | |

I, CARBON

CARBON RESISTOR (1/6W)

±5%, 1/6W, non-special type
2.2Ω through 1MΩ

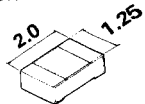


Parts No. 1-247-□□□-00

| Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- | Value | Parts No. -□□□- |
|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|
| 1Ω | — | 36Ω | 796 | 1.2kΩ | 833 | 43kΩ | 870 |
| 1.1 | — | 39 | 797 | 1.3 | 834 | 47 | 871 |
| 1.2 | — | 43 | 798 | 1.5 | 835 | 51 | 872 |
| 1.3 | — | 47 | 799 | 1.6 | 836 | 56 | 873 |
| 1.5 | — | 51 | 800 | 1.8 | 837 | 62 | 874 |
| 1.6 | — | 56 | 801 | 2 | 838 | 68 | 875 |
| 1.8 | — | 62 | 802 | 2.2 | 839 | 75 | 876 |
| 2 | — | 68 | 803 | 2.4 | 840 | 82 | 877 |
| 2.2 | 767 | 75 | 804 | 2.7 | 841 | 91 | 878 |
| 2.4 | 768 | 82 | 805 | 3 | 842 | 100kΩ | 879 |
| 2.7 | 769 | 91 | 806 | 3.3 | 843 | 110 | 880 |
| 3 | 770 | 100Ω | 807 | 3.6 | 844 | 120 | 881 |
| 3.3 | 771 | 110 | 808 | 3.9 | 845 | 130 | 882 |
| 3.6 | 772 | 120 | 809 | 4.3 | 846 | 150 | 883 |
| 3.9 | 773 | 130 | 810 | 4.7 | 847 | 160 | 884 |
| 4.3 | 774 | 150 | 811 | 5.1 | 848 | 180 | 885 |
| 4.7 | 775 | 160 | 812 | 5.6 | 849 | 200 | 886 |
| 5.1 | 776 | 180 | 813 | 6.2 | 850 | 220 | 887 |
| 5.6 | 777 | 200 | 814 | 6.8 | 851 | 240 | 888 |
| 6.2 | 778 | 220 | 815 | 7.5 | 852 | 270 | 889 |
| 6.8 | 779 | 240 | 816 | 8.2 | 853 | 300 | 890 |
| 7.5 | 780 | 270 | 817 | 9.1 | 854 | 330 | 891 |
| 8.2 | 781 | 300 | 818 | 10kΩ | 855 | 360 | 892 |
| 9.1 | 782 | 330 | 819 | 11 | 856 | 390 | 893 |
| 10Ω | 783 | 360 | 820 | 12 | 857 | 430 | 894 |
| 11 | 784 | 390 | 821 | 13 | 858 | 470 | 895 |
| 12 | 785 | 430 | 822 | 15 | 859 | 510 | 896 |
| 13 | 786 | 470 | 823 | 16 | 860 | 560 | 897 |
| 15 | 787 | 510 | 824 | 18 | 861 | 620 | 898 |
| 16 | 788 | 560 | 825 | 20 | 862 | 680 | 899 |
| 18 | 789 | 620 | 826 | 22 | 863 | 750 | 900 |
| 20 | 790 | 680 | 827 | 24 | 864 | 820 | 901 |
| 22 | 791 | 750 | 828 | 27 | 865 | 910 | 902 |
| 24 | 792 | 820 | 829 | 30 | 866 | 1MΩ | 903 |
| 27 | 793 | 910 | 830 | 33 | 867 | | |
| 30 | 794 | 1kΩ | 831 | 36 | 868 | | |
| 33 | 795 | 1.1 | 832 | 39 | 869 | | |

R, CHIP CARBON

CHIP RESISTOR



±5% 1/10W
0Ω through 3.3MΩ

Parts No. 1-216-□□□-00

| Value | Parts No. - □□□ - | Value | Parts No. - □□□ - | Value | Parts No. - □□□ - | Value | Parts No. - □□□ - | Value | Parts No. - □□□ - |
|-------|----------------------|-------|----------------------|-------|----------------------|-------|----------------------|-------|----------------------|
| 0Ω | 295 | 30 | 012 | 910 | 048 | 30 | 084 | 910 | 120 |
| 1Ω | — | 33Ω | 013 | 1kΩ | 049 | 33kΩ | 085 | 1MΩ | 121 |
| 1.1 | — | 36 | 014 | 1.1 | 050 | 36 | 086 | 1.1 | 122 |
| 1.2 | — | 39 | 015 | 1.2 | 051 | 39 | 087 | 1.2 | 123 |
| 1.3 | — | 43 | 016 | 1.3 | 052 | 43 | 088 | 1.3 | 124 |
| 1.5 | — | 47 | 017 | 1.5 | 053 | 47 | 089 | 1.5 | 125 |
| 1.6 | — | 51 | 018 | 1.6 | 054 | 51 | 090 | 1.6 | 126 |
| 1.8 | — | 56 | 019 | 1.8 | 055 | 56 | 091 | 1.8 | 127 |
| 2 | — | 62 | 020 | 2 | 056 | 62 | 092 | 2 | 128 |
| 2.2 | 298 | 68 | 021 | 2.2 | 057 | 68 | 093 | 2.2 | 129 |
| 2.4 | 301 | 75 | 022 | 2.4 | 058 | 75 | 094 | 2.4 | 130 |
| 2.7 | 302 | 82 | 023 | 2.7 | 059 | 82 | 095 | 2.7 | 131 |
| 3 | 303 | 91 | 024 | 3 | 060 | 91 | 096 | 3 | 132 |
| 3.3 | 304 | 100Ω | 025 | 3.3 | 061 | 100kΩ | 097 | 3.3 | 133 |
| 3.6 | 305 | 110 | 026 | 3.6 | 062 | 110 | 098 | | |
| 3.9 | 306 | 120 | 027 | 3.9 | 063 | 120 | 099 | | |
| 4.3 | 307 | 130 | 028 | 4.3 | 064 | 130 | 100 | | |
| 4.7 | 308 | 150 | 029 | 4.7 | 065 | 150 | 101 | | |
| 5.1 | 297 | 160 | 030 | 5.1 | 066 | 160 | 102 | | |
| 5.6 | 309 | 180 | 031 | 5.6 | 067 | 180 | 103 | | |
| 6.2 | 310 | 200 | 032 | 6.2 | 068 | 200 | 104 | | |
| 6.8 | 311 | 220 | 033 | 6.8 | 069 | 220 | 105 | | |
| 7.5 | 312 | 240 | 034 | 7.5 | 070 | 240kΩ | 106 | | |
| 8.2 | 313 | 270 | 035 | 8.2 | 071 | 270 | 107 | | |
| 9.1 | 314 | 300 | 036 | 9.1 | 072 | 300 | 108 | | |
| 10Ω | 001 | 330 | 037 | 10kΩ | 073 | 330 | 109 | | |
| 11 | 002 | 360 | 038 | 11 | 074 | 360 | 110 | | |
| 12 | 003 | 390 | 039 | 12 | 075 | 390 | 111 | | |
| 13 | 004 | 430 | 040 | 13 | 076 | 430 | 112 | | |
| 15 | 005 | 470 | 041 | 15 | 077 | 470 | 113 | | |
| 16 | 006 | 510 | 042 | 16 | 078 | 510 | 114 | | |
| 18 | 007 | 560 | 043 | 18 | 079 | 560 | 115 | | |
| 20 | 008 | 620 | 044 | 20 | 080 | 620 | 116 | | |
| 22 | 009 | 680 | 045 | 22 | 081 | 680 | 117 | | |
| 24 | 010 | 750 | 046 | 24 | 082 | 750 | 118 | | |
| 27 | 011 | 820 | 047 | 27 | 083 | 820 | 119 | | |

AT-16/16N

| Ref.No. | Parts No. | Description |
|-----------------|--------------|-----------------------------------|
| AT-16/16N BOARD | | |
| | A-7513-046-A | MOUNTED CIRCUIT BOARD "AT-16" |
| | A-7513-071-A | MOUNTED CIRCUIT BOARD "AT-16N" |
| C4 | 1-163-259-00 | CERAMIC CHIP 220P 5% 50V |
| C5 | 1-163-259-00 | CERAMIC CHIP 220P 5% 50V |
| C7 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C12 | 1-124-169-00 | ELECT 100 20% 10V |
| C13 | 1-131-375-00 | TANTALUM 0.22 10% 10V |
| C14 | 1-163-109-00 | CERAMIC CHIP 47P 5% 50V |
| C16 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C20 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C24 | 1-163-113-00 | CERAMIC CHIP 68P 5% 50V |
| C27 | 1-163-037-00 | CERAMIC CHIP 0.022 10% 25V |
| C29 | 1-130-495-00 | MYLAR 0.1 5% 50V |
| C32 | 1-131-343-00 | TANTALUM 0.22 10% 35V |
| C34 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C35 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C36 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C37 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C38 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C42 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| C49 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C50 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C51 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C52 | 1-163-251-00 | CERAMIC CHIP 100P 5% 50V |
| C72 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C77 | 1-124-271-00 | ELECT 1 20% 50V |
| C78 | 1-124-270-11 | ELECT 0.47 20% 50V |
| CN1 | 1-564-084-00 | RECEPTACLE, 60P MALE |
| | 1-556-762-00 | 60P PLUG WITH HARNESS |
| CN2 | 1-564-381-11 | RECEPTACLE, 6P MALE |
| | 1-562-388-11 | SOCKET CONNECTOR 6P |

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------------|
| D1 | 8-719-815-55 | 1S1555 |
| D2 | 8-719-815-55 | 1S1555 |
| D3 | 8-719-100-03 | 1S2835 |
| D4 | 8-719-815-55 | 1S1555 |
| D5 | 8-719-815-55 | 1S1555 |
| D6 | 8-719-815-55 | 1S1555 |
| D7 | 8-719-101-34 | RD3.0EL1 |
| D8 | 8-719-101-60 | RD6.2EL1 |
| D9 | 8-719-815-55 | 1S1555 |
| D10 | 8-719-815-55 | 1S1555 |
| D11 | 8-719-100-03 | 1S2835 |
| D12 | 8-719-815-55 | 1S1555 |
| D13 | 8-719-815-55 | 1S1555 |
| D14 | 8-719-100-03 | 1S2835 |
| D15 | 8-719-100-05 | 1S2837 |
| D16 | 8-719-815-55 | 1S1555 |
| D17 | 8-719-100-05 | 1S2837 |
| D18 | 8-719-100-05 | 1S2837 |
| D19 | 8-719-108-13 | 1S955 |
| D20 | 8-719-108-13 | 1S955 |
| D22 | 8-719-815-55 | 1S1555 |
| D23 | 8-719-101-98 | 1SS97 |
| D24 | 8-719-101-63 | RD6.8EL1 |
| D25 | 8-719-105-91 | RD5.6MB2 |
| D26 | 8-719-100-03 | 1S2835 |
| D28 | 8-719-100-05 | 1S2837 |
| D29 | 8-719-100-03 | 1S2835 |
| D30 | 8-719-100-03 | 1S2835 |
| D31 | 8-719-100-05 | 1S2837 |
| D32 | 8-719-100-05 | 1S2837 |
| DL1 | 1-415-345-00 | 110nS |
| IC1 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC2 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC3 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC4 | 8-759-906-53 | TL062CPS: TI |
| IC5 | 8-759-101-12 | μPC311G2: NEC |
| IC6 | 8-759-200-85 | TC4093BF: TOSHIBA |
| IC7 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC8 | 8-759-200-79 | TC4049BF: TOSHIBA |
| IC9 | 8-759-200-79 | TC4049BF: TOSHIBA |
| IC10 | 8-759-200-81 | TC4053BF: TOSHIBA |

| Ref.No. | Parts No. | Description |
|---------|--------------|---------------------|
| IC11 | 8-759-909-96 | LM711CH: NS |
| IC12 | 8-759-969-13 | SN16913P: TI |
| IC13 | 8-759-200-89 | TC4516BF: TOSHIBA |
| IC14 | 8-759-205-78 | TC504013BF: TOSHIBA |
| IC15 | 8-759-300-62 | HD44820B27: HITACHI |

| | | |
|------|--------------|-------------------|
| IC16 | 8-741-117-90 | BX1179: SONY |
| IC17 | 8-741-117-90 | BX1179: SONY |
| IC18 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC19 | 8-759-200-83 | TC4071BF: TOSHIBA |
| IC20 | 8-759-906-54 | TL064CNS: TI |

| | | |
|------|--------------|-------------------|
| IC21 | 8-759-200-79 | TC4049BF: TOSHIBA |
| IC23 | 8-759-605-18 | CX518: SONY |
| IC24 | 8-759-906-53 | TL062CPS: TI |
| IC25 | 8-759-906-54 | TL064CNS: TI |
| IC26 | 8-759-906-53 | TL062CPS: TI |

| | | |
|----|--------------|----------|
| L1 | 1-408-417-21 | MICRO 47 |
| L2 | 1-408-417-21 | MICRO 47 |
| L3 | 1-408-417-21 | MICRO 47 |

| | | |
|----|--------------|----------|
| Q1 | 8-729-101-25 | 2SC1009A |
| Q2 | 8-729-101-25 | 2SC1009A |
| Q3 | 8-729-101-25 | 2SC1009A |
| Q4 | 8-729-101-25 | 2SC1009A |
| Q5 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q6 | 8-729-109-44 | 2SK94 |
| Q7 | 8-729-109-44 | 2SK94 |
| Q8 | 8-729-101-25 | 2SC1009A |
| Q9 | 8-729-101-25 | 2SC1009A |
| Q10 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q11 | 8-729-101-25 | 2SC1009A |
| Q12 | 8-729-122-63 | 2SA1226 |
| Q13 | 8-729-122-63 | 2SA1226 |
| Q14 | 8-729-101-25 | 2SC1009A |
| Q15 | 8-729-800-44 | 2SK152-4 |

| | | |
|-----|--------------|----------|
| Q16 | 8-729-122-63 | 2SA1226 |
| Q17 | 8-729-101-25 | 2SC1009A |
| Q18 | 8-729-101-25 | 2SC1009A |
| Q19 | 8-729-101-25 | 2SC1009A |
| Q20 | 8-729-122-63 | 2SA1226 |

| | | |
|-----|--------------|----------|
| Q21 | 8-729-109-44 | 2SK94 |
| Q22 | 8-729-122-63 | 2SA1226 |
| Q23 | 8-729-101-25 | 2SC1009A |
| Q24 | 8-729-122-63 | 2SA1226 |
| Q25 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q26 | 8-729-101-25 | 2SC1009A |
| Q27 | 8-729-122-63 | 2SA1226 |
| Q28 | 8-729-101-25 | 2SC1009A |
| Q29 | 8-729-101-25 | 2SC1009A |
| Q30 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q31 | 8-729-101-25 | 2SC1009A |
| Q32 | 8-729-122-63 | 2SA1226 |
| Q33 | 8-729-122-63 | 2SA1226 |
| Q34 | 8-729-122-63 | 2SA1226 |
| Q35 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q36 | 8-729-101-25 | 2SC1009A |
| Q37 | 8-729-122-63 | 2SA1226 |
| Q38 | 8-729-101-25 | 2SC1009A |
| Q39 | 8-729-101-25 | 2SC1009A |
| Q40 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q41 | 8-729-800-68 | 2SB815 |
| Q42 | 8-729-101-25 | 2SC1009A |
| Q43 | 8-729-101-25 | 2SC1009A |
| Q44 | 8-729-101-25 | 2SC1009A |
| Q45 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q46 | 8-729-122-63 | 2SA1226 |
| Q47 | 8-729-101-25 | 2SC1009A |
| Q48 | 8-729-122-63 | 2SA1226 |
| Q49 | 8-729-109-44 | 2SK94 |
| Q50 | 8-729-800-36 | 2SD1048 |

| | | |
|-----|--------------|----------|
| Q51 | 8-729-101-25 | 2SC1009A |
| Q52 | 8-729-101-25 | 2SC1009A |
| Q54 | 8-729-101-25 | 2SC1009A |
| Q55 | 8-729-101-25 | 2SC1009A |
| Q56 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|-------|
| Q57 | 8-729-109-44 | 2SK94 |
| Q58 | 8-729-109-44 | 2SK94 |
| Q59 | 8-729-109-44 | 2SK94 |
| Q60 | 8-729-109-44 | 2SK94 |
| Q61 | 8-729-109-44 | 2SK94 |

| | | |
|-----|--------------|----------|
| Q63 | 8-729-109-44 | 2SK94 |
| Q64 | 8-729-101-25 | 2SC1009A |
| Q65 | 8-729-101-25 | 2SC1009A |

| | | |
|------|--------------|--------------------|
| R31 | 1-215-458-00 | METAL 36K 1% 1/6W |
| R33 | 1-215-481-00 | METAL 330K 1% 1/6W |
| R111 | 1-215-465-00 | METAL 68K 1% 1/6W |
| R154 | 1-247-696-11 | CARBON 47 5% 1/4W |

T-16, CN-8, CN-9, CN-65, DF-23

| Ref.No. | Parts No. | Description |
|---------|--------------|-----------------|
| RP1 | 1-231-387-00 | RESISTOR, BLOCK |

| | | |
|-----|--------------|-----------|
| RV1 | 1-228-460-00 | METAL 20K |
| RV2 | 1-228-457-00 | METAL 2K |

| | | |
|----|--------------|-------|
| S4 | 1-554-076-00 | SLIDE |
| S5 | 1-554-076-00 | SLIDE |

| | | |
|----|--------------|--------|
| X1 | 1-527-532-00 | 400KHz |
|----|--------------|--------|

| Ref.No. | Parts No. | Description |
|---------|-----------|-------------|
|---------|-----------|-------------|

CN-65 BOARD

| | | |
|-----------------------|-----------------------|---------|
| 1-608-897-13 | PRINTED CIRCUIT BOARD | "CN-65" |
| (BVP-30(UC) | S/N UP TO 20280 | |
| (BVP-30(J) | S/N UP TO 10160 | |
| (BVP-30(P) | S/N UP TO 30110 | |
| 1-608-897-14 | PRINTED CIRCUIT BOARD | "CN-65" |
| (BVP-30(UC) | S/N 20281 AND HIGHER | |
| (BVP-30(J) | S/N 10161 AND HIGHER | |
| (BVP-30(P) | S/N 30111 AND HIGHER | |

| | | |
|-----|--------------|------------------------|
| CN1 | 1-562-221-00 | RECEPTACLE, 12P FEMALE |
| | | "LENS" |
| | 1-561-171-00 | PLUG HOOSING 12P |
| | 1-560-768-00 | PLUG CONTACT |
| | 1-568-944-00 | INDEX PIN |

CN-8 BOARD

| | | |
|-------|--------------|------------------------|
| CN102 | 1-934-795-11 | CCU-15PIN CONNECTOR |
| | | WITH HARNESS |
| | 1-561-897-00 | RECEPTACLE, 15P FEMALE |
| | | "CCU" |

DF-23 BOARD

| | | |
|--------------|-----------------------|---------|
| A-7513-054-A | MOUNTED CIRCUIT BOARD | "DF-23" |
|--------------|-----------------------|---------|

| | | |
|----|--------------|------------------------|
| C1 | 1-130-802-00 | MYLAR 0.022 400V |
| C2 | 1-124-561-21 | ELECT 3.3 20% 250V |
| C4 | 1-123-380-00 | ELECT 1 20% 100V |
| C6 | 1-108-371-00 | MYLAR 0.0033 10% 100V |
| C7 | 1-130-814-00 | POLYESTER 0.01 5% 630V |

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| C8 | 1-123-380-00 | ELECT 1 20% 100V |
| C9 | 1-124-624-11 | ELECT 1 200V |
| C10 | 1-130-814-00 | POLYESTER 0.01 5% 630V |
| C11 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C12 | 1-161-894-00 | CERAMIC 0.1 50V |

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|-----|--------------|----------------------|
| C13 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C14 | 1-161-894-00 | CERAMIC 0.1 50V |
| C15 | 1-123-383-00 | ELECT 4.7 20% 100V |
| C16 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C17 | 1-131-341-00 | TANTALUM 0.1 10% 35V |

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| C18 | 1-123-384-00 | ELECT 10 20% 100V |
| C19 | 1-123-384-00 | ELECT 10 20% 100V |
| C20 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C21 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C22 | 1-124-561-21 | ELECT 3.3 20% 250V |

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| C28 | 1-123-354-00 | ELECT 3.3 20% 50V |
| C29 | 1-123-354-00 | ELECT 3.3 20% 50V |
| C31 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C32 | 1-161-894-00 | CERAMIC 0.1 50V |
| C33 | 1-131-347-00 | TANTALUM 1 10% 35V |

CN-9 BOARD

| | | |
|--------------|-----------------------|--------|
| A-7520-172-A | MOUNTED CIRCUIT BOARD | "CN-9" |
|--------------|-----------------------|--------|

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|-----|--------------|-----------------|
| CN1 | 1-564-154-00 | RECEPTACLE, 14P |
| CN2 | 1-564-379-11 | RECEPTACLE, 3P |

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|----|--------------|--------|
| D1 | 8-719-815-55 | 1S1555 |
| D2 | 8-719-815-55 | 1S1555 |

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| R1 | 1-215-493-00 | METAL 1M 1% 1/6W |
| R2 | 1-215-493-00 | METAL 1M 1% 1/6W |
| R3 | 1-215-493-00 | METAL 1M 1% 1/6W |

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|-----|--------------|-------|
| TM1 | 1-548-119-21 | TIMER |
|-----|--------------|-------|

| Ref.No. | Parts No. | Description | Ref.No. | Parts No. | Description |
|---------|--------------|----------------------|---------|--------------|--------------------|
| C34 | 1-161-894-00 | CERAMIC 0.1 50V | Q1 | 8-729-177-55 | 2SA1175 |
| C35 | 1-123-380-00 | ELECT 1 20% 100V | Q2 | 8-729-200-17 | 2SA1091 |
| C36 | 1-123-380-00 | ELECT 1 20% 100V | Q3 | 8-729-255-12 | 2SC2551 |
| C37 | 1-123-384-00 | ELECT 10 20% 100V | Q4 | 8-729-255-12 | 2SC2551 |
| C38 | 1-123-384-00 | ELECT 10 20% 100V | Q5 | 8-729-200-17 | 2SA1091 |
| C49 | 1-123-380-00 | ELECT 1 20% 100V | Q6 | 8-765-450-40 | 2SK125-4 |
| C50 | 1-123-380-00 | ELECT 1 20% 100V | Q7 | 8-729-178-55 | 2SC2785 |
| C51 | 1-108-425-00 | MYLAR 0.022 10% 200V | Q8 | 8-765-450-40 | 2SK125-4 |
| C52 | 1-108-425-00 | MYLAR 0.022 10% 200V | Q9 | 8-729-178-55 | 2SC2785 |
| C53 | 1-131-341-00 | TANTALUM 0.1 10% 35V | Q10 | 8-729-178-55 | 2SC2785 |
| C54 | 1-131-347-00 | TANTALUM 1 10% 35V | Q11 | 8-729-255-12 | 2SC2551 |
| C55 | 1-131-347-00 | TANTALUM 1 10% 35V | Q12 | 8-729-255-12 | 2SC2551 |
| C56 | 1-131-347-00 | TANTALUM 1 10% 35V | Q13 | 8-729-255-12 | 2SC2551 |
| C63 | 1-131-347-00 | TANTALUM 1 10% 35V | Q14 | 8-729-255-12 | 2SC2551 |
| C65 | 1-123-385-00 | ELECT 22 20% 100V | | | |
| C66 | 1-123-384-00 | ELECT 10 20% 100V | R14 | 1-215-475-00 | METAL 180K 1% 1/6W |
| C67 | 1-131-347-00 | TANTALUM 1 10% 35V | R15 | 1-215-485-00 | METAL 470K 1% 1/6W |
| | | | R16 | 1-215-475-00 | METAL 180K 1% 1/6W |
| | | | R17 | 1-214-966-00 | METAL 1.2M 1% 1/4W |
| CN1 | 1-560-935-00 | RECEPTACLE, 40P MALE | R18 | 1-214-970-00 | METAL 1.8M 1% 1/4W |
| | 1-560-707-00 | POLARISING KEY | | | |
| D1 | 8-719-815-55 | 1S1555 | R19 | 1-214-971-00 | METAL 2M 1% 1/4W |
| D2 | 8-719-815-55 | 1S1555 | R20 | 1-214-971-00 | METAL 2M 1% 1/4W |
| D3 | 8-719-815-55 | 1S1555 | R27 | 1-215-487-00 | METAL 560K 1% 1/6W |
| D4 | 8-719-815-55 | 1S1555 | R35 | 1-215-466-00 | METAL 75K 1% 1/6W |
| D5 | 8-719-815-55 | 1S1555 | R36 | 1-215-477-00 | METAL 220K 1% 1/6W |
| | | | | | |
| IC1 | 8-741-127-70 | BX1277: SONY | R37 | 1-215-466-00 | METAL 75K 1% 1/6W |
| IC2 | 8-741-127-80 | BX1278: SONY | R38 | 1-214-966-00 | METAL 1.2M 1% 1/4W |
| IC3 | 8-741-127-80 | BX1278: SONY | R39 | 1-214-953-00 | METAL 360K 1% 1/4W |
| IC4 | 8-741-127-80 | BX1278: SONY | R40 | 1-214-953-00 | METAL 360K 1% 1/4W |
| IC5 | 8-741-127-70 | BX1277: SONY | R46 | 1-214-787-00 | METAL 270K 1% 1/4W |
| IC6 | 8-741-137-20 | BX1372: SONY | | | |
| IC7 | 8-741-137-20 | BX1372: SONY | R49 | 1-215-471-00 | METAL 120K 1% 1/6W |
| IC8 | 8-741-137-20 | BX1372: SONY | R50 | 1-215-471-00 | METAL 120K 1% 1/6W |
| IC9 | 8-759-990-62 | TL062CP: TI | R51 | 1-215-460-00 | METAL 43K 1% 1/6W |
| IC10 | 8-759-990-62 | TL062CP: TI | R52 | 1-215-460-00 | METAL 43K 1% 1/6W |
| | | | R53 | 1-215-463-00 | METAL 56K 1% 1/6W |
| IC11 | 8-759-990-82 | TL082CP: TI | | | |
| IC12 | 8-759-907-92 | μ A796HCA: FSC | R54 | 1-215-478-00 | METAL 240K 1% 1/6W |
| IC13 | 8-741-108-00 | BX1080: SONY | R55 | 1-215-478-00 | METAL 240K 1% 1/6W |
| IC14 | 8-759-990-62 | TL062CP: TI | R56 | 1-215-464-00 | METAL 62K 1% 1/6W |
| IC15 | 8-759-900-64 | TL064CN: TI | R57 | 1-215-464-00 | METAL 62K 1% 1/6W |
| | | | R58 | 1-215-465-00 | METAL 68K 1% 1/6W |
| | | | | | |
| | | | R59 | 1-215-465-00 | METAL 68K 1% 1/6W |
| | | | R64 | 1-215-469-00 | METAL 100K 1% 1/6W |
| | | | R67 | 1-215-465-00 | METAL 68K 1% 1/6W |
| | | | R68 | 1-215-465-00 | METAL 68K 1% 1/6W |
| | | | R69 | 1-215-476-00 | METAL 200K 1% 1/6W |
| L1 | 1-408-429-00 | MICRO 470 | | | |
| L2 | 1-408-417-00 | MICRO 47 | | | |
| L3 | 1-408-417-00 | MICRO 47 | | | |
| L4 | 1-408-417-00 | MICRO 47 | | | |
| L5 | 1-408-417-00 | MICRO 47 | | | |
| L6 | 1-408-417-00 | MICRO 47 | | | |

F-23, EN-33/33A

| Ref.No. | Parts No. | Description |
|---------|--------------|--------------------|
| R70 | 1-215-476-00 | METAL 200K 1% 1/6W |
| R73 | 1-215-481-00 | METAL 330K 1% 1/6W |
| R74 | 1-215-469-00 | METAL 100K 1% 1/6W |
| R75 | 1-215-469-00 | METAL 100K 1% 1/6W |
| R82 | 1-215-485-00 | METAL 470K 1% 1/6W |
| R87 | 1-215-461-00 | METAL 47K 1% 1/6W |
| R88 | 1-215-461-00 | METAL 47K 1% 1/6W |
| R89 | 1-215-461-00 | METAL 47K 1% 1/6W |
| R90 | 1-215-461-00 | METAL 47K 1% 1/6W |
| R96 | 1-215-469-00 | METAL 100K 1% 1/6W |
| R106 | 1-215-455-00 | METAL 27K 1% 1/6W |
| R107 | 1-215-455-00 | METAL 27K 1% 1/6W |
| R108 | 1-215-455-00 | METAL 27K 1% 1/6W |
| R109 | 1-215-455-00 | METAL 27K 1% 1/6W |
| R110 | 1-215-468-00 | METAL 91K 1% 1/6W |
| R111 | 1-215-468-00 | METAL 91K 1% 1/6W |
| R112 | 1-215-468-00 | METAL 91K 1% 1/6W |
| R113 | 1-215-468-00 | METAL 91K 1% 1/6W |
| R114 | 1-214-966-00 | METAL 1.2M 1% 1/4W |
| R115 | 1-214-966-00 | METAL 1.2M 1% 1/4W |
| RV1 | 1-228-459-00 | METAL 10K |
| RV2 | 1-228-459-00 | METAL 10K |
| RV3 | 1-230-848-11 | METAL 1M |
| RV4 | 1-230-848-11 | METAL 1M |
| RV5 | 1-228-459-00 | METAL 10K |
| RV6 | 1-230-848-11 | METAL 1M |
| RV7 | 1-226-096-00 | METAL 500K |
| RV8 | 1-228-932-00 | METAL 10K |
| RV9 | 1-228-932-00 | METAL 10K |
| RV10 | 1-228-932-00 | METAL 10K |
| RV11 | 1-228-932-00 | METAL 10K |
| RV12 | 1-228-477-00 | METAL 100K |
| RV13 | 1-228-477-00 | METAL 100K |
| RV14 | 1-228-477-00 | METAL 100K |
| RV15 | 1-228-477-00 | METAL 100K |
| RV16 | 1-228-477-00 | METAL 100K |
| RV17 | 1-228-477-00 | METAL 100K |
| RV18 | 1-228-477-00 | METAL 100K |
| RV19 | 1-228-477-00 | METAL 100K |
| RV20 | 1-228-461-00 | METAL 50K |
| RV21 | 1-228-908-00 | METAL 50K |
| RV22 | 1-228-908-00 | METAL 50K |
| RV23 | 1-228-908-00 | METAL 50K |
| RV24 | 1-228-908-00 | METAL 50K |
| RV25 | 1-228-908-00 | METAL 50K |

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------|
| RV26 | 1-228-908-00 | METAL 50K |
| RV27 | 1-228-908-00 | METAL 50K |
| RV28 | 1-228-908-00 | METAL 50K |
| RV29 | 1-228-462-00 | METAL 100K |
| RV30 | 1-228-462-00 | METAL 100K |
| RV31 | 1-228-462-00 | METAL 100K |
| RV32 | 1-228-462-00 | METAL 100K |
| RV33 | 1-228-458-00 | METAL 5K |
| RV34 | 1-228-462-00 | METAL 100K |
| S1 | 1-554-075-00 | SLIDE |
| S2 | 1-554-076-00 | SLIDE |

T1 1-433-260-00 COUPLING

EN-33/33A BOARD

| | |
|--------------|---------------------------------------|
| A-7513-068-A | MOUNTED CIRCUIT BOARD |
| | "EN-33" (NTSC) |
| A-7513-070-A | MOUNTED CIRCUIT BOARD |
| | "EN-33A" (PAL) |
| C18 | 1-131-347-00 TANTALUM 1 10% 35V |
| C26 | 1-131-347-00 TANTALUM 1 10% 35V |
| C38 | 1-131-347-00 TANTALUM 1 10% 35V |
| C45 | 1-131-347-00 TANTALUM 1 10% 35V |
| C46 | 1-124-286-00 ELECT 33 20% 16V |
| C56 | 1-131-347-00 TANTALUM 1 10% 35V |
| C61 | 1-131-345-00 TANTALUM 0.47 10% 35V |
| C62 | 1-124-286-00 ELECT 33 20% 16V |
| C71 | 1-131-347-00 TANTALUM 1 10% 35V |
| C74 | 1-131-347-00 TANTALUM 1 10% 35V |
| C75 | 1-163-243-00 CERAMIC CHIP 47PF 5% 50V |
| C109 | 1-163-243-00 CERAMIC CHIP 47PF 5% 50V |
| C128 | 1-163-105-00 CERAMIC CHIP 33PF 5% 50V |
| | (NTSC) |
| C129 | 1-163-088-00 CERAMIC CHIP 5P 50V |
| | (NTSC) |
| CN1 | 1-560-935-00 RECEPTACLE, 40P MALE |
| | 1-560-707-00 POLARISING KEY |
| D5 | 8-719-815-55 1S1555 |
| DL1 | 1-415-291-00 790nS (NTSC) |
| | 1-415-304-00 338nS (PAL) |
| DL2 | 1-415-290-00 410nS (NTSC) |

| Ref.No. | Parts No. | Description | Ref.No. | Parts No. | Description |
|---------|--------------|-------------------|---------|--------------|-----------------------------|
| IC4 | 8-759-240-53 | TC4053BP: TOSHIBA | Q22 | 8-729-101-25 | 2SC1009A |
| IC5 | 8-749-910-55 | BX1055: SONY | Q23 | 8-729-101-25 | 2SC1009A |
| IC6 | 8-749-931-50 | BX315: SONY | Q24 | 8-729-101-25 | 2SC1009A (NTSC) |
| IC7 | 8-759-911-77 | CX7968A: SONY | Q25 | 8-729-101-25 | 2SC1009A (NTSC) |
| IC8 | 8-759-906-59 | CX22017: SONY | Q26 | 8-729-101-25 | 2SC1009A (NTSC) |
| IC10 | 8-759-906-13 | μA79M05AHC: FSC | Q27 | 8-729-101-25 | 2SC1009A |
| L1 | 1-408-417-00 | MICRO 47 | Q28 | 8-729-122-63 | 2SA1226 |
| L3 | 1-408-417-00 | MICRO 47 | Q29 | 8-729-101-25 | 2SC1009A |
| L4 | 1-408-417-00 | MICRO 47 | Q30 | 8-729-101-25 | 2SC1009A |
| L5 | 1-408-417-00 | MICRO 47 | Q31 | 8-729-122-63 | 2SA1226 |
| L6 | 1-408-849-00 | MICRO 330 (NTSC) | Q32 | 8-729-101-25 | 2SC1009A |
| L7 | 1-408-148-00 | MICRO 10 (NTSC) | Q33 | 8-729-101-25 | 2SC1009A |
| L8 | 1-408-150-00 | MICRO 22 (NTSC) | Q34 | 8-729-101-25 | 2SC1009A |
| | 1-408-170-00 | MICRO 18 (PAL) | Q35 | 8-729-101-25 | 2SC1009A |
| L9 | 1-408-851-00 | MICRO 560 (NTSC) | Q36 | 8-729-101-25 | 2SC1009A |
| L11 | 1-408-358-00 | MICRO 100 (NTSC) | Q37 | 8-729-101-25 | 2SC1009A |
| | 1-408-368-00 | MICRO 220 (PAL) | Q38 | 8-729-122-63 | 2SA1226 |
| L12 | 1-408-417-00 | MICRO 47 | Q39 | 8-729-101-25 | 2SC1009A |
| L13 | 1-408-145-00 | COIL 19 (NTSC) | Q40 | 8-729-101-25 | 2SC1009A |
| L17 | 1-408-417-00 | MICRO 47 | Q41 | 8-729-101-25 | 2SC1009A |
| L18 | 1-408-406-00 | MICRO 5.6 | Q42 | 8-729-101-25 | 2SC1009A |
| LV1 | 1-408-844-00 | 22 (NTSC) | Q43 | 8-729-101-25 | 2SC1009A |
| | 1-408-845-00 | 100 (PAL) | Q44 | 8-729-101-25 | 2SC1009A |
| LV2 | 1-408-844-00 | 22 | Q45 | 8-729-101-25 | 2SC1009A |
| Q1 | 8-729-364-12 | 2SC641K | Q46 | 8-729-101-25 | 2SC1009A |
| Q2 | 8-729-101-25 | 2SC1009A | Q47 | 8-729-101-25 | 2SC1009A |
| Q3 | 8-729-101-25 | 2SC1009A | Q48 | 8-729-101-25 | 2SC1009A |
| Q4 | 8-729-101-25 | 2SC1009A | Q49 | 8-729-101-25 | 2SC1009A |
| Q5 | 8-729-101-25 | 2SC1009A | Q50 | 8-729-101-25 | 2SC1009A |
| Q6 | 8-729-122-63 | 2SA1226 | Q51 | 8-729-101-25 | 2SC1009A |
| Q7 | 8-729-122-63 | 2SA1226 | Q52 | 8-729-101-25 | 2SC1009A |
| Q8 | 8-729-122-63 | 2SA1226 | Q53 | 8-729-122-63 | 2SA1226 |
| Q9 | 8-729-122-63 | 2SA1226 | Q54 | 8-729-122-63 | 2SA1226 |
| Q10 | 8-729-101-25 | 2SC1009A | Q55 | 8-729-122-63 | 2SA1226 |
| Q11 | 8-729-101-25 | 2SC1009A | Q56 | 8-729-101-25 | 2SC1009A |
| Q13 | 8-729-122-63 | 2SA1226 | Q65 | 8-729-364-12 | 2SC641K |
| Q14 | 8-729-101-25 | 2SC1009A | R14 | 1-214-503-00 | METAL 3.32K 0.5% 1/4W(NTSC) |
| Q15 | 8-729-100-66 | 2SC1623 | | 1-214-483-00 | METAL 4.99K 1% 1/2W (PAL) |
| Q16 | 8-729-101-25 | 2SC1009A | R15 | 1-214-499-00 | METAL 1.62K 0.5% 1/4W(NTSC) |
| Q17 | 8-729-101-25 | 2SC1009A | | 1-214-482-00 | METAL 2.55K 1% 1/2W (PAL) |
| Q18 | 8-729-101-25 | 2SC1009A | R16 | 1-214-504-00 | METAL 9.09K 0.5% 1/4W(NTSC) |
| Q19 | 8-729-101-25 | 2SC1009A | | 1-214-485-00 | METAL 13.7K 1% 1/2W (PAL) |
| Q20 | 8-729-101-25 | 2SC1009A | R61 | 1-214-503-00 | METAL 3.32K 0.5% 1/4W(NTSC) |
| Q21 | 8-729-101-25 | 2SC1009A | | 1-214-483-00 | METAL 4.99K 1% 1/2W (PAL) |
| | | | R62 | 1-214-499-00 | METAL 1.62K 0.5% 1/2W(NTSC) |
| | | | | 1-214-482-00 | METAL 2.55K 1% 1/2W (PAL) |
| | | | R63 | 1-214-504-00 | METAL 9.09K 0.5% 1/2W(NTSC) |
| | | | | 1-214-485-00 | METAL 13.7K 1% 1/2W (PAL) |
| | | | R87 | 1-214-502-00 | METAL 2.67K 0.5% 1/4W(NTSC) |
| | | | | 1-214-482-00 | METAL 2.55K 1% 1/2W (PAL) |
| | | | R88 | 1-214-501-00 | METAL 2.32K 0.5% 1/4W(NTSC) |
| | | | | 1-214-485-00 | METAL 13.7K 1% 1/2W (PAL) |

HN-33/33A, HN-30B

Ref.No. Parts No. Description

R96 1-215-829-11 METAL 91K 1% 1/8W (PAL)
R102 1-215-830-11 METAL 100K 1% 1/8W (PAL)
R127 1-214-500-00 METAL 2.26K 0.5% 1/4W(NTSC)
R128 1-214-503-00 METAL 3.32K 0.5% 1/4W(NTSC)
R131 1-214-483-00 METAL 4.99K 1% 1/2W (PAL)

R132 1-214-482-00 METAL 2.55K 1% 1/2W (PAL)
R164 1-214-482-00 METAL 2.55K 1% 1/2W
R165 1-214-485-00 METAL 13.7K 1% 1/2W
R179 1-214-482-00 METAL 2.55K 1% 1/2W
R180 1-214-483-00 METAL 4.99K 1% 1/2W

R206 1-215-820-00 METAL 39K 1% 1/8W
R212 1-215-463-00 METAL 56K 1% 1/6W
R214 1-215-463-00 METAL 56K 1% 1/6W
R218 1-215-829-11 METAL 91K 1% 1/8W (PAL)
R219 1-215-829-11 METAL 91K 1% 1/8W (PAL)

R260 1-215-473-00 METAL 150K 1% 1/6W (NTSC)
R261 1-215-474-00 METAL 160K 1% 1/6W (NTSC)
R262 1-215-474-00 METAL 160K 1% 1/6W (NTSC)
R263 1-215-473-00 METAL 150K 1% 1/6W (NTSC)

RV1 1-228-459-00 METAL 10K
RV2 1-228-456-00 METAL 1K
RV4 1-228-459-00 METAL 10K (NTSC)
RV5 1-228-457-00 METAL 2K (NTSC)
RV6 1-228-458-00 METAL 5K

RV7 1-228-459-00 METAL 10K
RV8 1-228-456-00 METAL 1K
RV9 1-228-456-00 METAL 1K
RV10 1-228-457-00 METAL 2K
RV11 1-228-457-00 METAL 2K

RV12 1-228-457-00 METAL 2K
RV13 1-226-369-00 METAL 5K
RV14 1-228-457-00 METAL 2K
RV15 1-228-458-00 METAL 5K
RV16 1-228-456-00 METAL 1K

RV17 1-226-369-00 METAL 5K
RV18 1-228-454-00 METAL 200
RV19 1-228-454-00 METAL 200
RV20 1-228-459-00 METAL 10K (NTSC)
RV21 1-228-458-00 METAL 5K (NTSC)

S1 1-552-509-00 SLIDE
S2 1-552-509-00 SLIDE
S3 1-554-923-11 TOGGLE (NTSC)

Ref.No. Parts No. Description

HN-30B BOARD

A-7513-056-A MOUNTED CIRCUIT BOARD
"HN-30B"

1-560-707-00 POLARISING KEY

CN1 1-562-066-00 RECEPTACLE, 40P FEMALE
CN2 1-562-066-00 RECEPTACLE, 40P FEMALE
CN3 1-562-066-00 RECEPTACLE, 40P FEMALE
CN4 1-562-066-00 RECEPTACLE, 40P FEMALE
CN5 1-562-066-00 RECEPTACLE, 40P FEMALE

CN6 1-562-066-00 RECEPTACLE, 40P FEMALE
CN7 1-562-112-21 RECEPTACLE, 50P MALE
CN8 1-556-762-00 60P PLUG WITH HARNESS (AT)
CN9 1-556-763-00 40P PLUG WITH HARNESS (SG)
CN10 1-556-764-00 50P PLUG WITH HARNESS (SH)

CN11 1-564-153-00 RECEPTACLE, 12P MALE
1-933-827-00 12P PLUG WITH HARNESS
(PA-HN)

1-561-178-00 PLUG HOUSING 12P

1-560-767-00 PLUG CONTACT
1-560-768-00 PLUG CONTACT

1-508-944-00 INDEX PIN

CN12 1-564-532-00 RECEPTACLE, 16P MALE
1-561-035-00 PLUG, HOUSING 16P
1-560-767-00 PLUG, CONTACT AWG22 TO 24
1-560-768-00 PLUG, CONTACT AWG24 TO 28
1-508-944-00 INDEX PIN

CN13 1-562-222-00 RECEPTACLE, 6P FEMALE "REMOTE"

CN14 1-561-781-41 RECEPTACLE, BNC "TEST OUT"
CN15 1-564-156-00 RECEPTACLE, 12P MALE
1-561-171-00 PLUG, HOUSING 12P
1-560-768-00 PLUG, CONTACT
1-508-944-00 INDEX PIN

HN-30B, HP-14, IE-6/6P

| Ref.No. | Parts No. | Description |
|---------|--------------|----------------------|
| CN16 | 1-564-155-00 | RECEPTACLE, 6P MALE |
| | 1-561-656-00 | PLUG, HOUSING 6P |
| | 1-560-768-00 | PLUG, CONTACT |
| | 1-508-944-00 | INDEX PIN |
| CN17 | 1-564-153-00 | RECEPTACLE, 12P MALE |
| | 1-561-178-00 | PLUG, HOUSING 12P |
| | 1-560-768-00 | PLUG, CONTACT |
| | 1-561-037-00 | PLUG, CONTACT |
| CN18 | 1-508-944-00 | INDEX PIN |
| | 1-564-153-00 | RECEPTACLE, 12P MALE |
| | 1-561-178-00 | PLUG, HOUSING 12P |
| | 1-560-768-00 | PLUG, CONTACT |
| CN19 | 1-561-037-00 | PLUG, CONTACT |
| | 1-508-944-00 | INDEX PIN |
| | 1-564-080-00 | RECEPTACLE, 12P MALE |
| | 1-561-178-00 | PLUG, HOUSING 12P |
| CN20 | 1-560-768-00 | PLUG, CONTACT |
| | 1-561-037-00 | PLUG, CONTACT |
| | 1-508-944-00 | INDEX PIN |
| | 1-564-079-00 | RECEPTACLE, 10P MALE |
| CN21 | 1-561-177-00 | PLUG, HOUSING 10P |
| | 1-560-768-00 | PLUG, CONTACT |
| | 1-508-944-00 | INDEX PIN |
| | 1-564-168-11 | RECEPTACLE, 3P MALE |

RV1 1-228-450-00 WIREWOUND 10K "PEDESTAL"

HP-14 BOARD

A-7513-059-A MOUNTED CIRCUIT BOARD
"HP-14"

1-934-869-13 3P PLUG WITH HARNESS

C1 1-131-344-00 TANTALUM 0.33 10% 35V
C2 1-123-827-00 ELECT 220 20% 4V
C5 1-123-647-00 ELECT 47 20% 6.3V
C6 1-123-616-00 ELECT 4.7 20% 25V
C8 1-131-344-00 TANTALUM 0.33 10% 35V

D1 8-719-160-03 RD2.2FC

IC1 8-751-840-00 CX184: SONY

Ref.No. Parts No. Description
RV1 1-230-337-11 METAL 10K "VOLUME"

SP1 1-503-059-00 4Ω 0.1W

IE-6/6P BOARD

A-7511-889-B MOUNTED CIRCUIT BOARD
"IE-6" (BVP-30/BVP-30PM)
A-7511-911-B MOUNTED CIRCUIT BOARD
"IE-6P" (BVP-30P)

C4 1-161-894-00 CERAMIC 0.1 50V
C6 1-161-894-00 CERAMIC 0.1 50V
C8 1-131-347-00 TANTALUM 1 10% 35V
C12 1-161-894-00 CERAMIC 0.1 50V
C24 1-161-894-00 CERAMIC 0.1 50V

C25 1-161-894-00 CERAMIC 0.1 50V
C26 1-161-894-00 CERAMIC 0.1 50V
C28 1-161-013-00 CERAMIC 0.01 10% 25V
C37 1-161-894-00 CERAMIC 0.1 50V
C42 1-131-377-00 TANTALUM 10 10V

C47 1-131-347-00 TANTALUM 1 10% 35V
C54 1-131-347-00 TANTALUM 1 10% 35V
C55 1-131-347-00 TANTALUM 1 10% 35V
C57 1-131-368-00 TANTALUM 3.3 10% 16V
C60 1-161-894-00 CERAMIC 0.1 50V

C61 1-131-343-00 TANTALUM 0.22 10% 35V
C62 1-161-894-00 CERAMIC 0.1 50V
C66 1-102-934-00 CERAMIC 1PF ±0.5PF 50V
C68 1-131-368-00 TANTALUM 3.3 10% 16V
C74 1-131-347-00 TANTALUM 1 10% 35V

C79 1-161-855-00 CERAMIC 47PF 5% 50V
C82 1-102-964-00 CERAMIC 36P 5% 50V (PAL)
C83 1-130-479-00 MYLAR 0.0047 5% 50V
C90 1-131-347-00 TANTALUM 1 10% 35V
C94 1-131-347-00 TANTALUM 1 10% 35V

C97 1-161-013-00 CERAMIC 0.01 10% 25V
C98 1-161-013-00 CERAMIC 0.01 10% 25V
C99 1-161-013-00 CERAMIC 0.01 10% 25V
C100 1-161-013-00 CERAMIC 0.01 10% 25V

| Ref.No. | Parts No. | Description |
|---------|---|--|
| CN1 | 1-560-935-00 1-560-707-00 | RECEPTACLE, 40P MALE POLARISING KEY |
| CV1 | 1-141-206-00 | TRIMMER 45PF |
| CV2 | 1-141-240-00 | TRIMMER 20PF |
| CV3 | 1-141-206-00 | TRIMMER 45PF |
| D4 | 8-719-815-55 | 1S1555 |
| D5 | 8-719-709-25 | 1S1925P |
| D6 | 8-719-100-38 | RD6.2EB2 |
| D7 | 8-719-709-25 | 1S1925P |
| D8 | 8-719-709-25 | 1S1925P |
| D9 | 8-719-815-55 | 1S1555 |
| D10 | 8-719-100-38 | RD6.2EB2 |
| D12 | 8-719-815-55 | 1S1555 |
| D13 | 8-719-100-28 | RD4.7EB3 |
| D14 | 8-719-815-55 | 1S1555 |
| D15 | 8-719-815-55 | 1S1555 |
| DL1 | 1-415-265-31 1-415-266-31 | 1H x 2 (NTSC) 1H x 2 (PAL) |
| DL2 | 1-415-166-00 1-415-302-00 | 165nS (NTSC) 120nS (PAL) |
| | (S/N UP TO 22700 BVP-3AP(EK) S/N UP TO 30110 BVP-3AS(AE) S/N UP TO 10055 BVP-30AP(EK)) | |
| | 1-415-237-00 | 140nS (PAL) |
| | (S/N 22701 AND HIGHER BVP-3AP(EK) S/N 30111 AND HIGHER BVP-3AS(AE) S/N 10056 AND HIGHER BVP-30AP(EK)) | |
| IC1 | 8-759-907-92 | μ A796HCA: FSC |
| IC2 | 8-759-907-34 | μ A733HC: FSC |
| IC3 | 8-759-907-34 | μ A733HC: FSC |
| IC4 | 8-759-990-62 | TL062CP: TI |
| IC5 | 8-759-907-34 | μ A733HC: FSC |
| IC6 | 8-759-907-92 | μ A796HCA: FSC |
| IC7 | 8-759-909-96 | LM711CH: NS |
| IC8 | 8-749-939-33 | BX3933: SONY |
| IC9 | 8-759-240-53 | TC4053BP: TOSHIBA |
| L4 | 1-408-358-00 | MICRO 100 |
| L5 | 1-408-150-00 | MICRO 22 |
| L10 | 1-408-147-00 | MICRO 2.2 |
| L11 | 1-408-150-00 | MICRO 22 |
| L13 | 1-408-357-00 1-408-150-00 | MICRO 33 (NTSC) MICRO 22 (PAL) |
| L14 | 1-408-357-00 1-408-150-00 | MICRO 33 (NTSC) MICRO 22 (PAL) |
| L18 | 1-408-954-00 | MICRO 47 |
| L19 | 1-408-850-00 | MICRO 390 |

| Ref.No. | Parts No. | Description |
|---------|--------------|--|
| Q1 | 8-729-364-12 | 2SC641K |
| Q2 | 8-729-178-54 | 2SC2785 |
| Q3 | 8-729-110-53 | 2SA1005 |
| Q4 | 8-729-117-54 | 2SA1175 |
| Q5 | 8-729-178-73 | 2SC2787 |
| Q6 | 8-729-178-73 | 2SC2787 |
| Q7 | 8-729-110-53 | 2SA1005 |
| Q8 | 8-769-132-00 | 2SK121-2 |
| | | (Be carefully when replace from 2SK43 to 2SK121. See page 5-75.) |
| Q9 | 8-729-266-93 | 2SC2669 |
| Q10 | 8-729-266-93 | 2SC2669 |
| Q11 | 8-729-178-73 | 2SC2787 |
| Q12 | 8-729-178-73 | 2SC2787 |
| Q13 | 8-729-178-73 | 2SC2787 |
| Q14 | 8-729-178-73 | 2SC2787 |
| Q15 | 8-729-178-73 | 2SC2787 |
| Q16 | 8-729-110-53 | 2SA1005 |
| Q17 | 8-729-900-71 | J271 |
| Q18 | 8-729-266-93 | 2SC2669 |
| Q19 | 8-729-266-93 | 2SC2669 |
| Q20 | 8-729-178-54 | 2SC2785 |
| Q21 | 8-729-900-75 | J175 |
| Q22 | 8-729-900-75 | J175 |
| Q23 | 8-729-900-75 | J175 |
| Q24 | 8-729-110-53 | 2SC1005 |
| Q25 | 8-729-110-53 | 2SC1005 |
| Q26 | 8-729-110-53 | 2SA1005 |
| Q27 | 8-729-178-73 | 2SC2787 |
| Q28 | 8-729-178-73 | 2SC2787 |
| Q29 | 8-729-178-73 | 2SC2787 |
| Q30 | 8-729-178-73 | 2SC2787 |
| Q31 | 8-729-178-73 | 2SC2787 |
| Q32 | 8-769-194-00 | 2SK43-4 |
| Q33 | 8-729-110-53 | 2SA1005 |
| Q34 | 8-729-110-53 | 2SA1005 |
| Q35 | 8-729-178-73 | 2SC2787 |
| Q36 | 8-729-178-73 | 2SC2787 |
| Q37 | 8-729-110-53 | 2SA1005 |
| Q38 | 8-765-222-20 | 2SC1963 |
| Q39 | 8-729-800-43 | 2SK152-3 |
| Q40 | 8-729-178-73 | 2SC2787 |
| Q41 | 8-729-117-54 | 2SA1175 |
| Q42 | 8-729-201-84 | 2SC3112 |
| Q43 | 8-729-110-53 | 2SA1005 |
| Q44 | 8-729-178-73 | 2SC2787 |
| Q45 | 8-729-110-53 | 2SA1005 |
| Q46 | 8-729-178-73 | 2SC2787 |
| Q47 | 8-729-110-53 | 2SA1005 |
| Q48 | 8-729-117-54 | 2SA1175 |
| Q49 | 8-729-178-54 | 2SC2785 |
| Q51 | 8-729-201-84 | 2SC3112 |

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------------|
| Q52 | 8-729-117-54 | 2SA1175 |
| Q53 | 8-729-117-54 | 2SA1175 |
| Q54 | 8-729-800-43 | 2SK152-3 |
| Q55 | 8-729-110-53 | 2SA1005 |
| Q56 | 8-729-364-12 | 2SC641K |
| Q57 | 8-729-117-54 | 2SA1175 |
| Q58 | 8-729-117-54 | 2SA1175 |
| Q59 | 8-729-117-54 | 2SA1175 |
| Q60 | 8-729-117-54 | 2SA1175 |
| Q61 | 8-729-178-54 | 2SC2785 |
| Q62 | 8-729-364-12 | 2SC641K |
| Q63 | 8-729-900-76 | J176 |
| Q64 | 8-729-178-54 | 2SC2785 |
| Q65 | 8-729-178-73 | 2SC2787 |
| Q66 | 8-729-178-73 | 2SC2787 |
| Q67 | 8-729-117-54 | 2SA1175 |
| Q68 | 8-729-117-54 | 2SA1175 |
| R147 | 1-215-820-11 | METAL 39K 1% 1/8W |
| RV1 | 1-228-457-00 | METAL 2K |
| RV2 | 1-228-470-00 | METAL 500 |
| RV4 | 1-228-456-00 | METAL 1K |
| RV5 | 1-228-472-00 | METAL 2K |
| RV6 | 1-228-470-00 | METAL 500 |
| RV7 | 1-228-472-00 | METAL 2K |
| RV8 | 1-228-457-00 | METAL 2K |
| RV9 | 1-228-458-00 | METAL 5K |
| RV10 | 1-228-459-00 | METAL 10K |
| RV11 | 1-228-458-00 | METAL 5K |
| S1 | 1-554-399-00 | TOGGLE |
| S2 | 1-554-076-00 | SLIDE |
| S3 | 1-554-399-00 | TOGGLE |
| X1 | 1-527-861-21 | 30MHz |

| Ref.No. | Parts No. | Description |
|--------------------|------------------------------|---|
| PA-37 BOARD | | |
| | A-7513-057-A | MOUNTED CIRCUIT BOARD "PA-37" |
| C5 | 1-163-220-11 | CERAMIC CHIP 3P 50V |
| C10 | 1-163-218-11 | CERAMIC CHIP 1.5P 50V |
| C15 | 1-163-220-11 | CERAMIC CHIP 3P 50V |
| C16 | 1-163-991-11 | CERAMIC CHIP 0.0022 10% 50V |
| CN1 | 1-564-158-00 1-933-833-00 | RECEPTACLE, 5P MALE 5P PLUG WITH HARNESS (PP-PA) |
| CN2 | 1-564-158-00 1-933-833-21 | RECEPTACLE, 5P MALE 5P PLUG WITH HARNESS (PP-PA) |
| CN3 | 1-564-158-00 1-933-833-31 | RECEPTACLE, 5P MALE 5P PLUG WITH HARNESS (PP-PA) |
| CN4 | 1-564-160-00 1-933-827-00 | RECEPTACLE, 12P MALE 12P PLUG WITH HARNESS (PA-HN) |
| CV1 | 1-141-206-00 | TRIMMER 45PF |
| CV2 | 1-141-206-00 | TRIMMER 45PF |
| CV3 | 1-141-206-00 | TRIMMER 45PF |
| CV4 | 1-141-299-11 | TRIMMER 6PF |
| CV5 | 1-141-299-11 | TRIMMER 6PF |
| CV6 | 1-141-299-11 | TRIMMER 6PF |
| CV7 | 1-141-299-11 | TRIMMER 6PF |
| CV8 | 1-141-291-11 | TRIMMER 10PF |
| CV9 | 1-141-299-11 | TRIMMER 6PF |
| CV10 | 1-141-291-11 | TRIMMER 10PF |
| CV11 | 1-141-299-11 | TRIMMER 6PF |
| CV12 | 1-141-291-11 | TRIMMER 10PF |
| D1 | 8-719-901-33 | 1SS133 |
| D2 | 8-719-901-33 | 1SS133 |
| D3 | 8-719-901-33 | 1SS133 |
| L1 | 1-408-417-21 | MICRO 47 |
| L2 | 1-408-429-00 | MICRO 470 |
| L3 | 1-408-417-21 | MICRO 47 |
| L4 | 1-408-417-21 | MICRO 47 |
| L5 | 1-408-417-21 | MICRO 47 |
| L6 | 1-408-429-00 | MICRO 470 |
| L7 | 1-408-417-21 | MICRO 47 |
| L8 | 1-408-417-21 | MICRO 47 |
| L9 | 1-408-417-21 | MICRO 47 |
| L10 | 1-408-429-00 | MICRO 470 |
| L11 | 1-408-417-21 | MICRO 47 |
| L12 | 1-408-417-21 | MICRO 47 |

A-37, PP-13, PR-75

| Ref. No. | Parts No. | Description |
|----------|-----------|-------------|
|----------|-----------|-------------|

| | | |
|----|--------------|----------|
| Q1 | 8-729-122-63 | 2SA1226 |
| Q2 | 8-729-101-25 | 2SC1009A |
| Q3 | 8-729-122-63 | 2SA1226 |
| Q4 | 8-729-101-25 | 2SC1009A |
| Q5 | 8-729-122-63 | 2SA1226 |

| | | |
|-----|--------------|----------|
| Q6 | 8-729-101-25 | 2SC1009A |
| Q7 | 8-729-122-63 | 2SA1226 |
| Q8 | 8-729-101-25 | 2SC1009A |
| Q9 | 8-729-122-63 | 2SA1226 |
| Q10 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|----------|
| Q11 | 8-729-122-63 | 2SA1226 |
| Q12 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|-----------|
| RV1 | 1-228-457-00 | METAL 2K |
| RV2 | 1-228-457-00 | METAL 2K |
| RV3 | 1-228-461-00 | METAL 50K |
| RV4 | 1-228-457-00 | METAL 2K |
| RV5 | 1-228-457-00 | METAL 2K |

| | | |
|------|--------------|------------|
| RV6 | 1-228-461-00 | METAL 50K |
| RV7 | 1-228-457-00 | METAL 2K |
| RV8 | 1-228-457-00 | METAL 2K |
| RV9 | 1-228-461-00 | METAL 50K |
| RV10 | 1-228-464-00 | METAL 500K |

| | | |
|------|--------------|------------|
| RV11 | 1-228-464-00 | METAL 500K |
| RV12 | 1-228-464-00 | METAL 500K |

PP-13 BOARD

| | |
|--------------|-----------------------|
| A-7513-058-A | MOUNTED CIRCUIT BOARD |
| | "PP-13" |
| 1-564-158-00 | RECEPTACLE, 5P MALE |

| | | |
|----|--------------|----------------------------|
| C1 | 1-163-830-11 | CERAMIC CHIP 0.022 5% 250V |
| C2 | 1-163-830-11 | CERAMIC CHIP 0.022 5% 250V |
| C3 | 1-163-830-11 | CERAMIC CHIP 0.022 5% 250V |
| C4 | 1-163-830-11 | CERAMIC CHIP 0.022 5% 250V |

| | | |
|----|--------------|----------|
| Q1 | 8-765-710-20 | 2SK284-2 |
|----|--------------|----------|

| | | |
|----|--------------|-------------------------|
| R1 | 1-216-321-11 | METAL CHIP 2M 2% 1/8W |
| R2 | 1-216-253-00 | METAL CHIP 200K 5% 1/8W |

| Ref. No. | Parts No. | Description |
|----------|-----------|-------------|
|----------|-----------|-------------|

PR-75 BOARD

| | |
|--------------|-----------------------|
| A-7513-356-A | MOUNTED CIRCUIT BOARD |
| | "RP-75" |

| | | |
|----|--------------|----------------------|
| C3 | 1-161-892-21 | CERAMIC 0.047 50V |
| C4 | 1-124-271-00 | ELECT 1 20% 50V |
| C6 | 1-124-283-00 | ELECT 4.7 20% 16V |
| C7 | 1-161-038-00 | CERAMIC CHIP 0.1 25V |
| C8 | 1-163-038-00 | CERAMIC CHIP 0.1 25V |

| | | |
|-----|--------------|--------------------|
| C13 | 1-124-584-00 | ELECT 100 20% 10V |
| C23 | 1-161-892-21 | CERAMIC 0.047 50V |
| C24 | 1-124-271-00 | ELECT 1 20% 50V |
| C26 | 1-125-283-00 | ELECT 4.7 20% 16V |
| C33 | 1-131-347-00 | TANTALUM 1 10% 35V |

| | | |
|-----|--------------|--------------------|
| C34 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C35 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C43 | 1-161-892-21 | CERAMIC 0.047 50V |
| C44 | 1-124-271-00 | ELECT 1 20% 50V |
| C46 | 1-124-283-00 | ELECT 4.7 20% 16V |

| | | |
|-----|--------------|-----------------------|
| CN1 | 1-560-935-00 | RECEPTACLE, MALE, 40P |
| CN2 | 1-560-690-11 | RECEPTACLE, 4P |
| | 1-561-724-00 | PLUG, SHORT |

| | | |
|-----|--------------|-----------------|
| CV1 | 1-141-298-11 | 10PF~2PF |
| CV2 | 1-141-298-11 | 10PF~2PF |
| CV3 | 1-141-298-11 | 10PF~2PF |
| CV4 | 1-141-300-11 | CERAMIC TRIMMER |

| | | |
|----|--------------|----------|
| D1 | 8-719-101-23 | 1SS123 |
| D2 | 8-719-815-59 | 2S1555-S |
| D3 | 8-719-101-23 | 1SS123 |
| D4 | 8-719-101-98 | 1SS97-0 |
| D5 | 8-719-815-59 | 1S1555-S |

| | | |
|-----|--------------|----------|
| D6 | 8-719-815-59 | 1S1555-S |
| D7 | 8-719-815-59 | 1S1555-S |
| D8 | 8-719-815-59 | 1S1555-S |
| D9 | 8-719-101-23 | 1SS123 |
| D11 | 8-719-101-23 | 1SS123 |

| | | |
|-----|--------------|----------|
| D12 | 8-719-815-59 | 1S1555-S |
| D13 | 8-719-101-23 | 1SS123 |
| D14 | 8-719-101-98 | 1SS97-0 |
| D15 | 8-719-815-59 | 1S1555-S |
| D16 | 8-719-815-59 | 1S1555-S |

| | | |
|-----|--------------|----------|
| D17 | 8-719-815-59 | 1S1555-S |
| D18 | 8-719-815-59 | 1S1555-S |
| D19 | 8-719-100-03 | 1S2835 |
| D20 | 8-719-101-98 | 1SS97-0 |
| D21 | 8-719-101-23 | 1SS123 |

Ref. No. Parts No. Description

D27 8-719-815-59 1S1555-S
D28 8-719-815-59 1S1555-S
D29 8-719-100-03 1S2835
D30 8-719-100-03 1S2835
D31 8-719-815-59 1S1555-S

IC1 8-759-906-53 TL062CPS; TI
IC2 8-759-906-53 TL062CPS; TI
IC3 8-759-906-53 TL062CPS; TI
IC4 8-759-906-53 TL062CPS; TI
IC5 8-759-906-53 TL062CPS; TI

IC6 8-749-931-50 BX-315; SONY
IC7 8-759-200-81 TC4053BF; TOSHIBA

L1 1-408-417-00 MICRO 47
L2 1-408-417-00 MICRO 47
L3 1-408-413-00 MICRO 22

Q1 8-729-175-73 2SC2757
Q2 8-729-175-73 2SC2757
Q3 8-729-175-73 2SC2757
Q4 8-729-175-73 2SC2757
Q5 8-729-109-44 2SK94

Q6 8-729-175-73 2SC2757
Q7 8-729-122-63 2SA1226
Q8 8-729-122-63 2SA1226
Q9 8-729-122-63 2SA1226
Q10 8-729-122-63 2SA1226

Q11 8-729-175-73 2SC2757
Q12 8-729-175-73 2SC2757
Q13 8-729-175-73 2SC2757
Q14 8-729-122-63 2SA1226
Q15 8-729-175-73 2SC2757

Q16 8-729-175-73 2SC2757
Q17 8-729-175-73 2SC2757
Q18 8-729-122-63 2SA1226
Q19 8-729-122-63 2SA1226
Q21 8-729-175-73 2SC2757

Q22 8-729-175-73 2SC2757
Q23 8-729-175-73 2SC2757
Q24 8-729-175-73 2SC2757
Q25 8-729-109-44 2SK94
Q26 8-729-175-73 2SC2757

Q27 8-729-122-63 2SA1226
Q28 8-729-122-63 2SA1226
Q29 8-729-122-63 2SA1226
Q30 8-729-122-63 2SA1226
Q31 8-729-175-73 2SC2757

Ref. No. Parts No. Description

Q32 8-729-175-73 2SC2757
Q33 8-729-175-73 2SC2757
Q34 8-729-122-63 2SA1226
Q35 8-729-175-73 2SC2757
Q36 8-729-175-73 2SC2757

Q37 8-729-175-73 2SC2757
Q38 8-729-175-73 2SC2757
Q41 8-729-175-73 2SC2757
Q42 8-729-175-73 2SC2757
Q43 8-729-175-73 2SC2757

Q44 8-729-175-73 2SC2757
Q45 8-729-109-44 2SK94
Q46 8-729-175-73 2SC2757
Q47 8-729-122-63 2SA1226
Q48 8-729-122-63 2SA1226

Q49 8-729-122-63 2SA1226
Q50 8-729-122-63 2SA1226
Q51 8-729-175-73 2SC2757
Q52 8-729-175-73 2SC2757
Q53 8-729-175-73 2SC2757

Q54 8-729-122-63 2SA1226
Q55 8-729-175-73 2SC2757
Q56 8-729-175-73 2SC2757
Q57 8-729-175-73 2SC2757
Q58 8-729-175-73 2SC2757

Q60 8-729-122-63 2SA1226
Q61 8-729-175-73 2SC2757
Q62 8-729-175-73 2SC2757
Q63 8-729-175-73 2SC2757
Q64 8-729-175-73 2SC2757

Q65 8-729-175-73 2SC2757
Q66 8-729-175-73 2SC2757
Q67 8-729-175-73 2SC2757
Q68 8-729-175-73 2SC2757
Q69 8-729-175-73 2SC2757


Q70 8-729-175-73 2SC2757
Q71 8-729-175-73 2SC2757
Q72 8-729-175-73 2SC2757
Q73 8-729-175-73 2SC2757
Q74 8-729-364-12 2SC641K

Q75 8-729-175-73 2SC2757
Q76 8-729-175-73 2SC2757

R25 1-215-830-11 METAL 100K 1% 1/8W
R28 1-215-820-11 METAL 39K 1% 1/8W
R85 1-215-830-11 METAL 100K 1% 1/8W
R155 1-215-830-11 METAL 100K 1% 1/8W
R240 1-215-822-11 METAL 43K 1% 1/8W

R-75, PS-41

| Ref.No. | Parts No. | Description |
|---------|--------------|------------------------|
| RV1 | 1-228-456-00 | CERMET 1K |
| RV2 | 1-228-473-00 | CERMET 5K |
| RV3 | 1-228-472-00 | CERMET 2K |
| RV4 | 1-228-458-00 | CERMET 5K |
| RV5 | 1-228-457-00 | CERMET 2K |
| RV6 | 1-228-474-00 | CERMET 10K |
| RV7 | 1-228-470-00 | CERMET 500 |
| RV8 | 1-228-471-00 | CERMET 1K |
| RV9 | 1-228-457-00 | CERMET 2K |
| RV11 | 1-228-456-00 | CERMET 1K |
| RV12 | 1-228-473-00 | CERMET 5K |
| RV13 | 1-228-472-00 | CERMET 2K |
| RV14 | 1-228-458-00 | CERMET 5K |
| RV15 | 1-228-457-00 | CERMET 2K |
| RV16 | 1-228-474-00 | CERMET 10K |
| RV17 | 1-228-470-00 | CERMET 500 |
| RV18 | 1-228-471-00 | CERMET 1K |
| RV19 | 1-228-458-00 | CERMET 5K |
| RV20 | 1-228-461-00 | CERMET 50K |
| RV21 | 1-228-456-00 | CERMET 1K |
| RV22 | 1-228-473-00 | CERMET 5K |
| RV23 | 1-228-472-00 | CERMET 2K |
| RV24 | 1-228-458-00 | CERMET 5K |
| RV25 | 1-228-457-00 | CERMET 2K |
| RV26 | 1-228-474-00 | CERMET 10K |
| RV27 | 1-228-470-00 | CERMET 500 |
| RV28 | 1-228-471-00 | CERMET 1K |
| RV29 | 1-228-458-00 | CERMET 5K |
| RV30 | 1-228-455-00 | CERMET 500 |
| RV31 | 1-228-459-00 | CERMET 10K |
| RV32 | 1-228-459-00 | CERMET 10K |
| RV33 | 1-228-458-00 | CERMET 5K |
| RV34 | 1-228-458-00 | CERMET 5K |
| RV35 | 1-228-458-00 | CERMET 5K |
| RV36 | 1-228-458-00 | CERMET 5K |
| S1 | 1-554-076-00 | SLIDE |
| S2 | 1-554-076-00 | SLIDE "MASKING ON/OFF" |
| S3 | 1-552-509-00 | DIP "R-γ ON/OFF" |
| S4 | 1-552-509-00 | DIP "G-γ ON/OFF" |
| S5 | 1-552-509-00 | DIP "B-γ ON/OFF" |
| S6 | 1-554-398-00 | TOGGLE "R/OFF/B" |
| S7 | 1-554-398-00 | TOGGLE "G/OFF/-G" |
| S8 | 1-554-397-00 | TOGGLE "ENC/REG" |
| S9 | 1-554-399-00 | TOGGLE "KNEE AUT/MAN." |
| TH1 | 1-800-946-00 | 360±5% |
| TH2 | 1-800-946-00 | 360±5% |
| TH3 | 1-800-946-00 | 360±5% |

| Ref.No. | Parts No. | Description |
|-------------|--|----------------------------------|
| PS-41 BOARD | | |
| |  A-7513-055-A | MOUNTED CIRCUIT BOARD "PS-41" |
| C1 | 1-108-603-00 | MYLAR 0.1 5% 50V |
| C2 | 1-124-149-00 | ELECT 220 20% 25V |
| C3 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C4 | 1-124-149-00 | ELECT 220 20% 25V |
| C5 | 1-130-193-00 | POLYESTER 0.47 5% 100V |
| C7 | 1-130-475-00 | MYLAR 0.0022 5% 50V |
| C8 | 1-130-193-00 | POLYESTER 0.47 5% 100V |
| C9 | 1-131-466-00 | TANTALUM 150 20% 16V |
| C11 | 1-130-193-00 | POLYESTER 0.47 5% 100V |
| C12 | 1-131-466-00 | TANTALUM 150 20% 16V |
| C14 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C16 | 1-131-583-00 | TANTALUM 150 20% 20V |
| C17 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C24 | 1-131-465-00 | TANTALUM 68 20% 16V |
| C26 | 1-131-466-00 | TANTALUM 150 20% 16V |
| C30 | 1-123-384-00 | ELECT 10 20% 100V |
| C31 | 1-124-341-00 | ELECT 1 20% 200V |
| C32 | 1-123-384-00 | ELECT 10 20% 100V |
| C33 | 1-123-819-00 | ELECT 33 20% 25V |
| C36 | 1-106-367-00 | MYLAR 0.01 10% 200V |
| C37 | 1-123-929-00 | ELECT 1 160V |
| C43 | 1-123-910-00 | ELECT 330 20% 16V |
| C44 | 1-123-384-00 | ELECT 10 20% 100V |
| C46 | 1-131-345-00 | TANTALUM 0.47 10% 35V |
| C48 | 1-131-345-00 | TANTALUM 0.47 10% 35V |
| C50 | 1-131-345-00 | TANTALUM 0.47 10% 35V |
| C56 | 1-125-444-11 | DOUBLE LAYERS 0.1 5.5V |
| C58 | 1-130-193-00 | POLYESTER 0.47 5% 100V |
| C59 | 1-101-110-11 | CERAMIC 220P 10% 50V |
| C60 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C64 | 1-123-819-00 | ELECT 33 20% 25V |
| C65 | 1-124-149-00 | ELECT 220 20% 25V |
| C66 | 1-108-599-00 | MYLAR 0.068 5% 50V |
| C70 | 1-131-465-00 | TANTALUM 68 20% 16V |
| C75 | 1-124-294-00 | ELECT 330 20% 25V |
| C76 | 1-130-193-00 | POLYESTER 0.47 5% 100V |
| C77 | 1-131-466-00 | TANTALUM 150 20% 16V |
| C78 | 1-124-560-11 | ELECT 10 20% 250V |
| C81 | 1-106-367-00 | MYLAR 0.01 10% 200V |
| C82 | 1-123-384-00 | ELECT 10 20% 100V |
| C83 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C84 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C85 | 1-131-347-00 | TANTALUM 1 10% 35V |

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------------|
| C86 | 1-161-892-11 | CERAMIC 0.047 50V |
| C87 | 1-161-892-11 | CERAMIC 0.047 50V |
| C88 | 1-161-892-11 | CERAMIC 0.047 50V |
| C89 | 1-123-252-00 | ELECT 1 160V |

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|-----|--------------|---------------------|
| CN1 | 1-560-935-00 | RECEPTACLE.40P MALE |
| | 1-560-707-00 | POLARISING KEY |

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|----|--------------|-----------|
| D3 | 8-719-815-55 | 1S1555 |
| D4 | 8-719-981-00 | ERC81-004 |
| D5 | 8-719-815-55 | 1S1555 |
| D6 | 8-719-815-55 | 1S1555 |
| D7 | 8-719-981-00 | ERC81-004 |

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|-----|--------------|---------|
| D10 | 8-719-162-07 | RD6.2EB |
| D12 | 8-719-162-07 | RD6.2EB |
| D16 | 8-719-815-55 | 1S1555 |
| D21 | 8-719-300-76 | RH1A |
| D22 | 8-719-300-76 | RH1A |

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| D23 | 8-719-300-76 | RH1A |
| D24 | 8-719-981-01 | ERA81-004 |
| D25 | 8-719-981-01 | ERA81-004 |
| D26 | 8-719-981-01 | ERA81-004 |
| D27 | 8-719-911-55 | U05G |

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| D28 | 8-719-981-01 | ERA81-004 |
| D29 | 8-719-981-01 | ERA81-004 |
| D31 | 8-719-182-07 | RD8.2EB04 |
| D32 | 8-719-182-07 | RD8.2EB04 |
| D33 | 8-719-182-07 | RD8.2EB04 |

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| D36 | 8-719-931-08 | EQB01-08 |
| D37 | 8-719-815-55 | 1S1555 |
| D38 | 8-719-815-55 | 1S1555 |
| D39 | 8-719-815-55 | 1S1555 |
| D40 | 8-719-815-55 | 1S1555 |

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|-----|--------------|-----------|
| D41 | 8-719-982-04 | ERB81-004 |
| D42 | 8-719-982-04 | ERB81-004 |
| D43 | 8-719-982-04 | ERB81-004 |
| D44 | 8-719-982-04 | ERB81-004 |
| D45 | 8-719-300-76 | RH1A |

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| D46 | 8-719-300-76 | RH1A |
| D47 | 8-719-300-76 | RH1A |
| D48 | 8-719-300-76 | RH1A |
| D49 | 8-719-101-98 | 1SS97 |

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|-----|--------------|--------------|
| IC1 | 8-759-900-64 | TL064CN: TI |
| IC2 | 8-759-904-94 | TL494CN: TI |
| IC3 | 8-759-904-94 | TL494CN: TI |
| IC4 | 8-759-101-54 | μPC454D: NEC |
| IC5 | 8-759-900-64 | TL064CN: TI |

| Ref.No. | Parts No. | Description |
|---------|--------------|------------------------|
| IC6 | 8-759-278-07 | TA78L007AP: TOSHIBA |
| IC7 | 8-759-278-18 | TA78L018AP: TOSHIBA |
| IC8 | 8-759-101-54 | μPC454D: NEC |
| IC9 | 8-759-708-09 | NJM78L09A: JRC |
| △IC11 | 8-759-905-80 | AD580MH: ANALOG DEVICE |

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| IC12 | 8-759-205-79 | TC504027BF: TOSHIBA |
| IC13 | 8-759-700-68 | NJM79L09A: JRC |

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|----|--------------|---------------------|
| L1 | 1-408-142-21 | 22.5 |
| L2 | 1-408-549-00 | 150 |
| L3 | 1-408-549-00 | 150 |
| L4 | 1-421-013-00 | HORIZONTAL CHOKE 25 |
| L5 | 1-421-013-00 | HORIZONTAL CHOKE 25 |

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| L6 | 1-408-142-21 | 22.5 |
| L9 | 1-421-013-00 | HORIZONTAL CHOKE 25 |

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|----|--------------|--------|
| Q1 | 8-729-113-33 | 2SB733 |
| Q2 | 8-729-113-33 | 2SB733 |
| Q3 | 8-729-113-33 | 2SB733 |
| Q4 | 8-729-113-33 | 2SB733 |
| Q5 | 8-729-177-32 | 2SD733 |

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| Q6 | 8-729-113-33 | 2SB733 |
| Q7 | 8-729-177-32 | 2SD733 |
| Q9 | 8-729-364-12 | 2SC641K |
| Q10 | 8-729-810-62 | 2SD1061 |
| Q11 | 8-729-810-62 | 2SD1061 |

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|-----|--------------|---------|
| Q12 | 8-729-255-12 | 2SC2551 |
| Q13 | 8-729-255-12 | 2SC2551 |
| Q15 | 8-729-178-55 | 2SC2785 |
| Q16 | 8-729-117-54 | 2SA1175 |
| Q17 | 8-729-113-33 | 2SB733 |

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|-----|--------------|---------|
| Q18 | 8-729-113-33 | 2SB733 |
| Q19 | 8-729-113-33 | 2SB733 |
| Q20 | 8-729-178-55 | 2SC2785 |
| Q21 | 8-729-255-12 | 2SC2551 |
| Q22 | 8-729-178-55 | 2SC2785 |
| Q23 | 8-729-178-55 | 2SC2785 |

S-41, SG-63A

| Ref.No. | Parts No. | Description |
|---------|--------------|----------------------|
| R10 | 1-247-120-00 | CARBON 360 5% 1/4W |
| R15 | 1-217-612-00 | WIREWOUND 0.1 2W |
| R26 | 1-213-134-00 | METAL 180 5% 1W |
| R57 | 1-215-469-00 | METAL 100K 1% 1/6W |
| R63 | 1-215-462-00 | METAL 51K 1% 1/6W |
| R64 | 1-215-478-00 | METAL 240K 1% 1/6W |
| R70 | 1-215-833-11 | METAL 4.7K 1% 1/4W |
| R73 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R74 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R75 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R76 | 1-215-503-00 | METAL 12K 1/4W |
| R79 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R80 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R81 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R82 | 1-215-502-00 | METAL 100 1/4W |
| R85 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R86 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R87 | 1-217-643-00 | WIREWOUND 10 1% 1/2W |
| R109 | 1-215-485-00 | METAL 470K 1% 1/6W |
| R110 | 1-215-491-00 | METAL 820K 1% 1/6W |
| R119 | 1-207-622-00 | WIREWOUND 2.2 10% 3W |
| R120 | 1-215-444-11 | METAL 9.1K 1% 1/6W |
| RV1 | 1-228-456-00 | METAL 1K |
| RV2 | 1-228-456-11 | METAL 1K |
| RV3 | 1-228-455-00 | METAL 500 |
| RV4 | 1-228-454-00 | METAL 200 |
| RV5 | 1-230-097-00 | METAL 100 |
| RV6 | 1-228-458-00 | METAL 5K |
| RV7 | 1-230-097-00 | METAL 100 |
| RV9 | 1-230-097-00 | METAL 100 |
| S1 | 1-554-076-00 | SLIDE |
| T1 | 1-447-816-12 | DC-DC CONVERTER |

| Ref. No. | Parts No. | Description |
|---------------------|--------------|-----------------------------------|
| SG-63A BOARD | | |
| | A-7511-913-B | MOUNTED CIRCUIT BOARD "SG-63A" |
| C4 | 1-107-075-00 | MICA 39PF 5% 50V |
| C19 | 1-163-243-00 | CERAMIC CHIP 47PF 5% |
| C27 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| C28 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| C33 | 1-163-233-00 | CERAMIC CHIP 18PF 5% |
| C34 | 1-124-169-00 | ELECT 100 20% 10V |
| C35 | 1-107-075-00 | MICA 39PF 5% 50V |
| C36 | 1-107-075-00 | MICA 39PF 5% 50V |
| C42 | 1-163-255-00 | CERAMIC CHIP 150PF 5% |
| C49 | 1-130-483-00 | MYLAR 0.01 5% 50V |
| C51 | 1-161-009-00 | CERAMIC 0.0047 10% 25V |
| CN1 | 1-564-083-00 | RECEPTACLE, 40P MALE |
| | 1-556-763-00 | 40P PLUG WITH HARNESS |
| CN2 | 1-561-724-00 | SOKET, CONNECTOR |
| | 1-560-690-00 | PLUG, SHORT 4P |
| CN3 | 1-561-724-00 | SOKET, CONNECTOR |
| | 1-560-690-00 | PLUG, SHORT 4P |
| CN4 | 1-561-724-00 | SOKET, CONNECTOR |
| | 1-560-690-00 | PLUG, SHORT 4P |
| D1 | 8-719-100-03 | 1S2835 |
| D2 | 8-719-100-03 | 1S2835 |
| D3 | 8-719-101-23 | 1SS123 |
| D5 | 8-719-100-05 | 1S2837 |
| IC1 | 8-759-240-53 | TC4053BP: TOSHIBA |
| IC2 | 8-759-900-86 | SN74LS86N: TI |
| IC3 | 8-759-901-23 | SN74LS123N: TI |
| IC4 | 8-759-990-62 | TL062CP: TI |
| IC5 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC6 | 8-759-200-79 | TC4049BF: TOSHIBA |
| IC7 | 8-759-906-53 | TL062CPS: TI |
| IC8 | 8-759-200-81 | TC4053BF: TOSHIBA |
| IC9 | 8-757-731-00 | CX773A: SONY |
| IC10 | 8-759-907-21 | CX7969: SONY |
| IC11 | 8-759-200-80 | TC4050BF: TOSHIBA |
| IC12 | 8-749-910-40 | BX1040: SONY |
| IC13 | 8-759-101-12 | μPC311G2: NEC |
| IC14 | 8-757-903-00 | CX7903: SONY |
| IC15 | 8-759-902-21 | SN74LS221N: TI |

| Ref.No. | Parts No. | Description |
|---------|--------------|---------------|
| L7 | 1-408-150-00 | MICRO 22 |
| L8 | 1-408-150-00 | MICRO 22 |
| L12 | 1-408-147-00 | MICRO 2.2 |
| L13 | 1-408-151-00 | MICRO 47 |
| Q1 | 8-729-122-63 | 2SA1226 |
| Q2 | 8-729-101-25 | 2SC1009A |
| Q3 | 8-729-101-25 | 2SC1009A |
| Q4 | 8-729-364-12 | 2SC641K |
| Q5 | 8-729-101-25 | 2SC1009A |
| Q6 | 8-729-122-63 | 2SA1226 |
| Q7 | 8-729-101-25 | 2SC1009A |
| Q8 | 8-729-122-63 | 2SA1226 |
| Q10 | 8-729-364-12 | 2SC641K |
| Q11 | 8-729-101-25 | 2SC1009A |
| Q12 | 8-729-105-74 | 2SK523-M1 |
| Q13 | 8-729-101-25 | 2SC1009A |
| Q14 | 8-729-105-74 | 2SK523-M1 |
| Q16 | 8-729-122-63 | 2SA1226 |
| R104 | 1-215-437-00 | METAL 4700 1% |
| RV1 | 1-228-460-00 | METAL 20K |
| RV2 | 1-228-460-00 | METAL 20K |
| RV4 | 1-228-460-00 | METAL 20K |
| RV5 | 1-228-460-00 | METAL 20K |
| RV7 | 1-228-461-00 | METAL 50K |
| S1 | 1-554-076-00 | SLIDE |
| S2 | 1-554-076-00 | SLIDE |
| S3 | 1-553-925-00 | ROTARY |
| S4 | 1-554-075-00 | SLIDE |
| S5 | 1-554-076-00 | SLIDE |
| THP1 | 1-806-166-00 | 4300 |
| X1 | 1-567-084-00 | 14.31818MHz |
| X2 | 1-567-085-00 | 14.31818MHz |

| Ref.No. | Parts No. | Description |
|--------------------|--|---|
| SH-8A BOARD | | |
| | A-7513-064-A | MOUNTED CIRCUIT BOARD "SH-8A" |
| C16 | 1-130-192-00 | POLYESTER 0.22 5% 100V |
| C24 | 1-163-231-00 | CERAMIC CHIP 15PF 5% 50V |
| C25 | 1-163-231-00 | CERAMIC CHIP 15PF 5% 50V |
| C26 | 1-163-231-00 | CERAMIC CHIP 15PF 5% 50V |
| C28 | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V |
| C41 | 1-131-361-00 | TANTALUM 2.2 10% 20V |
| C42 | 1-131-361-00 | TANTALUM 2.2 10% 20V |
| C43 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| C49 | 1-163-287-00 | ELECT (NONPOLAR) 10 20% 10V |
| C50 | 1-163-267-00 | CERAMIC CHIP 470P 5% 50V |
| C51 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| C52 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| C53 | 1-163-141-00 | CERAMIC CHIP 0.001 5% 50V |
| CN1 | 1-560-675-00 1-556-764-00 | RECEPTACLE, 50P MALE 50P PLUG WITH HARNESS |
| CN2 | 1-564-151-00 1-561-176-00 1-560-768-00 1-508-944-00 | RECEPTACLE, 8P MALE PLUG, HOUSING 8P PLUG, CONTACT INDEX PIN |
| CN3 | 1-564-152-00 1-561-177-00 1-560-768-00 1-508-944-00 | RECEPTACLE, 10P MALE PLUG, HOUSING 10P PLUG, CONTACT INDEX PIN |
| CN4 | 1-564-159-00 1-933-834-00 | RECEPTACLE, 7P MALE PLUG 7P WITH HARNESS |
| D1 | 8-719-100-05 | 1S2837 |
| D2 | 8-719-100-03 | 1S2835 |
| D4 | 8-719-100-05 | 1S2837 |
| D5 | 8-719-100-05 | 1S2837 |
| D6 | 8-719-100-05 | 1S2837 |
| D7 | 8-719-105-32 | RD2.7MB2 |
| D8 | 8-719-100-05 | 1S2837 |
| D10 | 8-719-100-03 | 1S2835 |
| D11 | 8-719-100-03 | 1S2835 |
| D12 | 8-719-100-03 | 1S2835 |
| D13 | 8-719-100-03 | 1S2835 |
| IC1 | 8-759-906-54 | TL064CNS: TI |
| IC2 | 8-759-906-54 | TL064CNS: TI |
| IC3 | 8-759-906-54 | TL064CNS: TI |
| IC4 | 8-759-200-90 | TC4538BF: TOSHIBA |
| IC5 | 8-759-906-54 | TL064CNS: TI |

SH-8A, DUS-122, SW-77

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------|
| Q1 | 8-723-305-00 | 2SK43-5 |
| Q2 | 8-723-305-00 | 2SK43-5 |
| Q3 | 8-723-305-00 | 2SK43-5 |
| Q4 | 8-729-101-25 | 2SC1009A |
| Q5 | 8-729-101-25 | 2SC1009A |
| Q6 | 8-729-122-63 | 2SA1226 |
| Q7 | 8-729-122-63 | 2SA1226 |
| Q8 | 8-729-122-63 | 2SA1226 |
| Q9 | 8-723-305-00 | 2SK43-5 |
| Q10 | 8-723-305-00 | 2SK43-5 |
| Q11 | 8-723-305-00 | 2SK43-5 |
| Q12 | 8-729-101-25 | 2SC1009A |
| Q14 | 8-729-122-63 | 2SA1226 |
| Q15 | 8-729-101-25 | 2SC1009A |
| Q16 | 8-729-122-63 | 2SA1226 |
| Q17 | 8-729-101-25 | 2SC1009A |
| Q18 | 8-729-101-25 | 2SC1009A |
| Q19 | 8-729-122-63 | 2SA1226 |
| Q22 | 8-729-101-25 | 2SC1009A |
| Q23 | 8-729-101-25 | 2SC1009A |
| Q24 | 8-729-101-25 | 2SC1009A |
| Q25 | 8-729-101-25 | 2SC1009A |
| Q26 | 8-729-122-63 | 2SA1226 |
| Q27 | 8-729-101-25 | 2SC1009A |

| | | |
|-----|--------------|--------------------|
| R4 | 1-246-441-00 | CARBON 47 5% 1/4W |
| R90 | 1-215-462-00 | METAL 51K 1% 1/6W |
| R92 | 1-215-462-00 | METAL 51K 1% 1/6W |
| R95 | 1-215-473-00 | METAL 150K 1% 1/6W |

| | | |
|-----|--------------|------------|
| RV1 | 1-228-462-00 | METAL 100K |
| RV2 | 1-228-462-00 | METAL 100K |
| RV3 | 1-228-462-00 | METAL 100K |
| RV4 | 1-228-462-00 | METAL 100K |
| RV5 | 1-228-462-00 | METAL 100K |

| | | |
|------|--------------|------------|
| RV6 | 1-228-462-00 | METAL 100K |
| RV7 | 1-228-462-00 | METAL 100K |
| RV8 | 1-228-462-00 | METAL 100K |
| RV9 | 1-228-462-00 | METAL 100K |
| RV10 | 1-228-462-00 | METAL 100K |

| | | |
|------|--------------|------------|
| RV11 | 1-228-462-00 | METAL 100K |
| RV12 | 1-228-462-00 | METAL 100K |
| RV13 | 1-228-463-00 | METAL 200K |
| RV14 | 1-228-463-00 | METAL 200K |
| RV15 | 1-228-463-00 | METAL 200K |

| | | |
|------|--------------|------------|
| RV16 | 1-228-463-00 | METAL 200K |
| RV17 | 1-228-462-00 | METAL 100K |
| RV18 | 1-228-462-00 | METAL 100K |
| RV19 | 1-228-462-00 | METAL 100K |
| RV20 | 1-228-459-00 | METAL 10K |

| | | |
|------|--------------|------------|
| RV21 | 1-228-463-00 | METAL 200K |
| RV22 | 1-228-463-00 | METAL 200K |
| RV23 | 1-228-463-00 | METAL 200K |
| RV24 | 1-228-463-00 | METAL 200K |
| RV25 | 1-228-463-00 | METAL 200K |

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------|
| RV26 | 1-228-463-00 | METAL 200K |
| RV27 | 1-228-462-00 | METAL 100K |
| RV28 | 1-228-462-00 | METAL 100K |
| RV29 | 1-228-462-00 | METAL 100K |
| RV30 | 1-228-462-00 | METAL 100K |
| RV31 | 1-228-452-00 | METAL 50 |
| RV32 | 1-228-462-00 | METAL 100K |
| RV33 | 1-228-462-00 | METAL 100K |
| RV34 | 1-228-462-00 | METAL 100K |
| RV35 | 1-228-462-00 | METAL 100K |
| RV36 | 1-228-459-00 | METAL 10K |

| | | |
|----|--------------|-------|
| S1 | 1-552-509-00 | SLIDE |
| S2 | 1-552-509-00 | SLIDE |

DUS-122 BOARD

All of the component parts on the DUS-122 board are supplied together when you order SH-8A board

1-619-130-11 PC, BOARD DUS-122

| | | |
|-----|--------------|------------|
| RV1 | 1-228-461-00 | CERMET 50K |
| RV2 | 1-228-461-00 | CERMET 50K |

SW-77 BOARD

A-7520-131-A MOUNTED CIRCUIT BOARD
"SW-77"

| | | |
|-----|--------------|----------------------|
| CN1 | 1-564-172-00 | RECEPTACLE, 7P MALE |
| | 1-933-834-00 | PLUG 7P WITH HARNESS |

| | | |
|----|--------------|-----------------------|
| S1 | 1-554-396-00 | TOGGLE "AUTO CENT" |
| S2 | 1-554-395-00 | TOGGLE "AUTO W/B BAL" |

SW-78, SW-207, SW-79

Ref.No. Parts No. Description

SW-78 BOARD

| | |
|------------------------------|-------------------------|
| S/N UP TO 50065 BVP-30(J) | UP TO 16415 BVP-3A(J) |
| S/N UP TO 60510 BVP-30(UC) | UP TO 42020 BVP-3A(UC) |
| S/N UP TO 10160 BVP-30AP(EK) | UP TO 10106 BVP-3AN(J) |
| | UP TO 22710 BVP-3AP(EK) |
| | UP TO 30110 BVP-3AS(AE) |

A-7511-886-A MOUNTED CIRCUIT BOARD
"SW-78"

| | | |
|----|--------------|---------|
| D1 | 8-179-191-07 | RD9.1EB |
| D2 | 8-719-815-85 | 1S1585 |
| D3 | 8-719-815-85 | 1S1585 |
| D4 | 8-719-815-85 | 1S1585 |

| | | |
|----|--------------|---------------------|
| S1 | 1-554-356-00 | TOGGLE "CAMERA/VTR" |
| S2 | 1-554-400-00 | TOGGLE "GAIN" |
| S3 | 1-554-355-00 | TOGGLE "OUTPUT" |
| S4 | 1-554-355-00 | TOGGLE "WHITE BAL" |

Ref.No. Parts No. Description

SW-207 BOARD

| | |
|-----------------------------------|------------------------------|
| S/N 50066 AND HIGHER BVP-30(J) | 16416 AND HIGHER BVP-3A(J) |
| S/N 60511 AND HIGHER BVP-30(UC) | 42021 AND HIGHER BVP-3A(UC) |
| S/N 10161 AND HIGHER BVP-30AP(EK) | 22711 AND HIGHER BVP-3AP(EK) |
| | 30111 AND HIGHER BVP-3AS(AE) |

1-621-164-11 PC BOARD, SW-207

CN1 1-506-467-11 PIN, CONNECTOR 2P

| | | |
|----|--------------|----------|
| D1 | 8-719-100-54 | RD9.1EB1 |
| D2 | 8-719-100-55 | 1S1555 |
| D3 | 8-719-100-55 | 1S1555 |
| D4 | 8-719-100-55 | 1S1555 |

| | | |
|----|--------------|--------------------|
| R1 | 1-215-433-00 | METAL 3.3K 1% 1/6W |
| R2 | 1-215-445-00 | METAL 10K 1% 1/6W |
| R3 | 1-215-445-00 | METAL 10K 1% 1/6W |
| R4 | 1-215-457-00 | METAL 33K 1% 1/6W |
| R5 | 1-215-467-00 | METAL 82K 1% 1/6W |
| R6 | 1-215-471-00 | METAL 120K 1% 1/6W |

| | | |
|----|--------------|----------------|
| S1 | 1-554-356-00 | SWITCH, TOGGLE |
| S2 | 1-554-400-00 | SWITCH, TOGGLE |
| S3 | 1-570-911-11 | SWITCH, TOGGLE |
| S4 | 1-554-355-00 | SWITCH, TOGGLE |

SW-79 BOARD

A-7520-132-A MOUNTED CIRCUIT BOARD
"SW-79"

S1 1-553-739-00 PUSH "VTR"

'A-23

| Ref.No. | Parts No. | Description | Ref.No. | Parts No. | Description |
|--------------------|---------------------|------------------------------------|-------------|---------------------|-----------------------------|
| VA-23 BOARD | | | C200 | 1-161-894-00 | CERAMIC 0.1 50V |
| | | | C201 | 1-161-894-00 | CERAMIC 0.1 50V |
| | | | C202 | 1-161-894-00 | CERAMIC 0.1 50V |
| | A-7513-053-A | MOUNTED CIRCUIT BOARD "VA-23" | | | |
| C3 | 1-131-347-00 | TANTALUM 1 10% 35V | CN1 | 1-560-935-00 | RECEPTACLE, 40P MALE |
| C6 | 1-124-290-00 | ELECT (NONPOLAR) 47 20% 10V | | 1-560-707-00 | POLARISING KEY |
| C7 | 1-124-271-00 | ELECT (NONPOLAR) 1 20% 50V | | | |
| C8 | 1-131-347-00 | TANTALUM 1 10% 35V | | | |
| C12 | 1-124-139-00 | ELECT 100 20% 10V | CV1 | 1-141-206-00 | TRIMMER 45PF |
| C13 | 1-131-345-00 | TANTALUM 0.47 10% 35V | CV2 | 1-141-206-00 | TRIMMER 45PF |
| C14 | 1-131-347-00 | TANTALUM 1 10% 35V | CV3 | 1-141-206-00 | TRIMMER 45PF |
| C19 | 1-131-347-00 | TANTALUM 1 10% 35V | | | |
| C22 | 1-131-347-00 | TANTALUM 1 10% 35V | | | |
| C23 | 1-124-290-00 | ELECT (NONPOLAR) 47 20% 10V | D1 | 8-719-815-59 | 1S1555S |
| C24 | 1-124-271-00 | ELECT (NONPOLAR) 1 20% 50V | D2 | 8-719-815-59 | 1S1555S |
| C25 | 1-131-347-00 | TANTALUM 1 10% 35V | D3 | 8-719-815-59 | 1S1555S |
| C28 | 1-124-139-00 | ELECT 100 20% 10V | D4 | 8-719-815-85 | 1S1585 |
| C29 | 1-131-345-00 | TANTALUM 0.47 10% 35V | D5 | 8-719-815-55 | 1S1555 |
| C30 | 1-131-347-00 | TANTALUM 1 10% 35V | D6 | 8-719-815-55 | 1S1555 |
| C33 | 1-131-368-00 | TANTALUM 3.3 10% 16V | D7 | 8-719-815-55 | 1S1555 |
| C37 | 1-131-347-00 | TANTALUM 1 10% 35V | D8 | 8-719-815-55 | 1S1555 |
| C39 | 1-131-347-00 | TANTALUM 1 10% 35V | D9 | 8-719-815-85 | 1S1585 |
| C41 | 1-131-347-00 | TANTALUM 1 10% 35V | D10 | 8-719-815-55 | 1S1555 |
| C42 | 1-124-290-00 | ELECT (NONPOLAR) 47 20% 10V | D11 | 8-719-815-85 | 1S1585 |
| C43 | 1-124-271-00 | ELECT (NONPOLAR) 1 20% 50V | D12 | 8-719-815-55 | 1S1555 |
| C46 | 1-124-139-00 | ELECT 100 20% 10V | D13 | 8-719-815-55 | 1S1555 |
| C47 | 1-131-345-00 | TANTALUM 0.47 10% 35V | D14 | 8-719-815-55 | 1S1555 |
| C48 | 1-131-347-00 | TANTALUM 1 10% 35V | D18 | 8-719-815-59 | 1S1555-S |
| C55 | 1-131-347-00 | TANTALUM 1 10% 35V | | | |
| C56 | 1-123-380-00 | ELECT 1 20% 100V | IC1 | 8-749-910-55 | BX1055: SONY |
| C57 | 1-123-383-00 | ELECT 4.7 20% 100V | IC2 | 8-749-910-82 | BX1082: SONY |
| C60 | 1-123-332-00 | ELECT 47 20% 25V | IC3 | 8-759-907-92 | μA796HCA: FSC |
| C61 | 1-123-380-00 | ELECT 1 20% 100V | IC4 | 8-749-910-55 | BX1055: SONY |
| C66 | 1-123-380-00 | ELECT 1 20% 100V | IC5 | 8-749-910-82 | BX1082: SONY |
| C71 | 1-123-380-00 | ELECT 1 20% 100V | IC6 | 8-759-907-92 | μA796HCA: FSC |
| C75 | 1-123-379-00 | ELECT 0.47 20% 100V | IC7 | 8-749-910-55 | BX1055: SONY |
| C76 | 1-123-379-00 | ELECT 0.47 20% 100V | IC8 | 8-749-910-82 | BX1082: SONY |
| C79 | 1-123-380-00 | ELECT 1 20% 50V | IC9 | 8-759-907-92 | μA796HCA: FSC |
| C82 | 1-106-172-00 | MYLAR 0.001 5% 100V | IC10 | 8-741-121-90 | BX1219: SONY |
| C83 | 1-106-172-00 | MYLAR 0.001 5% 100V | IC11 | 8-741-121-90 | BX1219: SONY |
| C84 | 1-131-347-00 | TANTALUM 1 10% 35V | IC12 | 8-741-121-90 | BX1219: SONY |
| C85 | 1-131-347-00 | TANTALUM 1 10% 35V | IC13 | 8-759-240-11 | TC4011BP: TOSHIBA |
| C92 | 1-163-109-00 | CERAMIC CHIP 47PF 5% 50V | | | |
| C93 | 1-163-109-00 | CERAMIC CHIP 47PF 5% 50V | | | |
| C94 | 1-163-109-00 | CERAMIC CHIP 47PF 5% 50V | Q1 | 8-729-117-54 | 2SA1175 |
| C96 | 1-161-043-00 | CERAMIC 0.0022 10% 25V | Q2 | 8-729-117-54 | 2SA1175 |
| C97 | 1-161-013-00 | CERAMIC 0.01 10% 25V | Q3 | 8-765-450-20 | 2SK125 |
| C98 | 1-161-013-00 | CERAMIC 0.01 10% 25V | Q4 | 8-729-178-54 | 2SC2785 |
| C99 | 1-161-013-00 | CERAMIC 0.01 10% 25V | Q5 | 8-765-450-20 | 2SK125 |
| C100 | 1-161-013-00 | CERAMIC 0.01 10% 25V | Q6 | 8-765-450-20 | 2SK125 |
| C101 | 1-163-083-00 | CERAMIC CHIP 1P 50V | Q7 | 8-765-450-20 | 2SK125 |
| C102 | 1-163-083-00 | CERAMIC CHIP 1P 50V | Q8 | 8-729-178-54 | 2SC2785 |
| C103 | 1-163-083-00 | CERAMIC CHIP 1P 50V | Q9 | 8-729-178-54 | 2SC2785 |
| | | | Q10 | 8-729-178-54 | 2SC2785 |

VA-23, FRAME

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------|
| Q11 | 8-729-110-53 | 2SA1005 |
| Q12 | 8-729-201-84 | 2SC3112B |
| Q13 | 8-729-178-54 | 2SC2785 |
| Q14 | 8-729-117-54 | 2SA1175 |
| Q15 | 8-729-117-54 | 2SA1175 |
| Q16 | 8-729-117-54 | 2SA1175 |
| Q17 | 8-765-450-20 | 2SK125 |
| Q18 | 8-729-178-54 | 2SC2785 |
| Q19 | 8-765-450-20 | 2SK125 |
| Q20 | 8-765-450-20 | 2SK125 |
| Q21 | 8-765-450-20 | 2SK125 |
| Q22 | 8-769-163-00 | 2SK152 |
| Q23 | 8-729-178-73 | 2SC2787 |
| Q24 | 8-729-178-73 | 2SC2787 |
| Q25 | 8-729-178-73 | 2SC2787 |
| Q26 | 8-729-110-53 | 2SA1005 |
| Q27 | 8-729-201-84 | 2SC3112B |
| Q28 | 8-729-178-54 | 2SC2785 |
| Q29 | 8-729-117-54 | 2SA1175 |
| Q30 | 8-729-117-54 | 2SA1175 |
| Q31 | 8-729-117-54 | 2SA1175 |
| Q32 | 8-729-117-54 | 2SA1175 |
| Q33 | 8-765-450-20 | 2SK125 |
| Q34 | 8-729-178-54 | 2SC2785 |
| Q35 | 8-765-450-20 | 2SK125 |
| Q36 | 8-765-450-20 | 2SK125 |
| Q37 | 8-765-450-20 | 2SK125 |
| Q38 | 8-729-178-54 | 2SC2785 |
| Q39 | 8-729-178-54 | 2SC2785 |
| Q40 | 8-729-178-54 | 2SC2785 |
| Q41 | 8-729-110-53 | 2SA1005 |
| Q42 | 8-729-201-84 | 2SC3112B |
| Q43 | 8-729-178-54 | 2SC2785 |
| Q44 | 8-729-117-54 | 2SA1175 |
| Q45 | 8-729-110-53 | 2SA1005 |
| Q46 | 8-729-117-54 | 2SA1175 |
| Q47 | 8-729-117-54 | 2SA1175 |
| Q48 | 8-729-110-53 | 2SA1005 |
| Q49 | 8-729-178-54 | 2SC2785 |
| Q50 | 8-729-117-54 | 2SA1175 |
| Q54 | 8-729-117-54 | 2SA1175 |
| Q55 | 8-729-178-54 | 2SC2785 |
| Q56 | 8-729-110-53 | 2SA1005 |
| Q57 | 8-729-200-17 | 2SA1091 |
| Q58 | 8-729-178-54 | 2SC2785 |

| | | |
|------|--------------|--------------------|
| R19 | 1-215-485-00 | METAL 470K 1% 1/6W |
| R166 | 1-215-819-11 | METAL 36K 1% 1/8W |
| R168 | 1-215-819-11 | METAL 36K 1% 1/8W |
| R205 | 1-215-830-11 | METAL 100K 1% 1/8W |
| R207 | 1-215-822-11 | METAL 47K 1% 1/8W |
| R305 | 1-215-458-00 | METAL 36K 1% 1/6W |
| R306 | 1-215-458-00 | METAL 36K 1% 1/6W |

| Ref.No. | Parts No. | Description |
|---------|--------------|-------------|
| RV1 | 1-228-472-00 | METAL 2K |
| RV2 | 1-228-472-00 | METAL 2K |
| RV3 | 1-228-472-00 | METAL 2K |
| RV5 | 1-228-459-00 | METAL 10K |
| RV6 | 1-228-460-00 | METAL 20K |
| RV7 | 1-228-475-00 | METAL 20K |
| RV8 | 1-228-459-00 | METAL 10K |
| RV9 | 1-228-460-00 | METAL 20K |
| RV11 | 1-228-459-00 | METAL 10K |
| RV12 | 1-228-460-00 | METAL 20K |
| RV13 | 1-228-475-00 | METAL 20K |
| RV14 | 1-228-457-00 | METAL 2K |
| RV15 | 1-228-460-00 | METAL 20K |
| RV17 | 1-228-459-00 | METAL 10K |
| RV18 | 1-228-460-00 | METAL 20K |
| RV19 | 1-228-475-00 | METAL 20K |
| RV20 | 1-228-459-00 | METAL 10K |
| RV21 | 1-228-460-00 | METAL 20K |
| RV22 | 1-228-454-00 | METAL 200 |
| RV23 | 1-228-454-00 | METAL 200 |
| RV24 | 1-228-454-00 | METAL 200 |
| RV26 | 1-228-459-00 | METAL 10K |
| RV27 | 1-228-457-00 | METAL 2K |
| RV28 | 1-228-457-00 | METAL 2K |
| RV29 | 1-228-458-00 | METAL 5K |
| RV30 | 1-228-458-00 | METAL 5K |
| RV31 | 1-228-458-00 | METAL 5K |
| RV32 | 1-228-455-00 | METAL 500 |
| RV33 | 1-228-455-00 | METAL 500 |
| RV34 | 1-228-455-00 | METAL 500 |
| RV35 | 1-228-458-00 | METAL 5K |
| RV36 | 1-228-460-00 | CERMET 20K |

CAMERA FRAME

| | |
|--------------|--|
| 1-547-133-12 | PRISM, OPTICAL "PY-08" |
| 1-934-743-11 | PICKUP TUBE SOCKET WITH HARNESS (R) |
| 1-934-744-11 | PICKUP TUBE SOCKET WITH HARNESS (G) |
| 1-934-745-11 | PICKUP TUBE SOCKET WITH HARNESS (B) |

| | | |
|-------|--------------|----------------------------------|
| CN101 | 1-561-812-00 | RECEPTACLE, 20P FEMALE "VF" |
| CN102 | 1-934-795-11 | CCU-15 CONNECTOR WITH HARNESS |
| CN103 | 1-561-233-21 | RECEPTACLE, 6P FEMALE "LENS" |
| | 1-933-829-13 | LENS CONNECTOR WITH HARNESS |
| CN104 | 1-562-221-21 | RECEPTACLE, 12P FEMALE "VF" |

**P-28, MC-19
W-80, VF-22**

Ref.No. Parts No. Description

VIEW FINDER

LP-28 BOARD

| | | |
|-----|--|--|
| | A-7513-066-A | MOUNTED CIRCUIT BOARD "LP-28" |
| CN1 | 1-564-005-00 1-562-151-11 1-564-026-00 | RECEPTACLE, 6P MALE PLUG HOUSING 6P PLUG CONTACT |
| CN2 | 1-564-006-11 1-562-152-11 1-564-026-00 | RECEPTACLE, 7P MALE PLUG HOUSING 7P PLUG CONTACT |
| D1 | 8-719-812-43 | TLG124A "FILTER/AUDIO 1" |
| D2 | 8-719-812-43 | TLG124A "FILTER/AUDIO 2" |
| D3 | 8-719-812-43 | TLG124A "FILTER/AUDIO 3" |
| D4 | 8-719-812-43 | TLG124A "FILTER/AUDIO 4" |
| D5 | 8-719-812-41 | TLR124 "FILTER/AUDIO 5" |
| D6 | 8-719-812-44 | TLO124 "GAIN UP" |
| D7 | 8-719-812-43 | TLG124A "W/B CENT" |
| D8 | 8-719-900-92 | GL9PR20 "BATT" |
| D9 | 8-719-900-92 | GL9PR20 "REC" |
| D10 | 8-719-909-20 | GL9NG2 "10M" |
| D11 | 8-719-909-20 | GL9NG2 "5M" |

MC-19 BOARD

| | | |
|-----|--------------|----------------------------------|
| | 1-606-127-00 | PRINTED CIRCUIT BOARD "MC-19" |
| CN1 | 1-561-816-00 | RECEPTACLE, 6P FEMALE |

SW-80 BOARD

| | | |
|--|--------------|----------------------------------|
| | 1-612-778-11 | PRINTED CIRCUIT BOARD "SW-80" |
|--|--------------|----------------------------------|

| | | |
|------|--------------|----------------------|
| D1 | 8-719-101-98 | 1SS97 |
| D2 | 8-719-815-55 | 1S1555 |
| S101 | 1-554-922-11 | TOGGLE "TALLY/ZEBRA" |

VF-22 BOARD

| | |
|--------------|----------------------------------|
| A-7513-067-A | MOUNTED CIRCUIT BOARD "VF-22" |
|--------------|----------------------------------|

| | | |
|-----|--------------|---------------------------|
| C6 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C7 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C8 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C10 | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V |
| C11 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C12 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C13 | 1-163-109-00 | CERAMIC CHIP 47PF 5% 50V |
| C15 | 1-106-192-00 | MYLAR 0.0068 5% 100V |
| C17 | 1-131-368-00 | TANTALUM 3.3 10% 16V |

| | | |
|-------|--------------|--------------------------|
| A-C18 | 1-136-287-11 | POLYESTER 0.0047 5% 100V |
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Ref. No. Parts No. Description

**C19 IS SELECTABLE PARTS FOR ADJUSTMENT
(REFER TO Flyback Pulse Width Adjustment)**

| | | |
|-------|--------------|-----------------------------|
| A-C19 | 1-136-287-11 | POLYESTER 0.0047 5% 100V |
| | 1-136-288-11 | POLYESTER 0.0051 5% 100V |
| | 1-136-289-11 | POLYESTER 0.0056 5% 100V |
| | 1-136-290-11 | POLYESTER 0.0062 5% 100V |
| | 1-136-291-11 | POLYESTER 0.0068 5% 100V |
| | 1-136-292-11 | POLYESTER 0.0075 5% 100V |
| | 1-136-293-11 | POLYESTER 0.0082 5% 100V |
| | 1-136-306-11 | POLYESTER 0.0039 5% 100V |
| | 1-136-307-11 | POLYESTER 0.0043 5% 100V |
| C21 | 1-163-991-11 | CERAMIC CHIP 0.0022 10% 50V |
| C22 | 1-123-384-00 | ELECT 10 20% 100V |
| C23 | 1-162-870-11 | CERAMIC CHIP 0.0022 10% 1KV |
| C24 | 1-130-815-00 | FILM 0.015 5% 630V |
| C27 | 1-124-168-00 | ELECT 100 20% 16V |
| C28 | 1-131-368-00 | TANTALUM 3.3 10% 16V |
| C29 | 1-131-361-00 | TANTALUM 2.2 10% 16V |
| C30 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C33 | 1-130-487-00 | MYLAR 0.022 5% 50V |
| C35 | 1-131-343-00 | TANTALUM 0.22 10% 35V |
| C37 | 1-130-481-00 | MYLAR 0.0068 5% 50V |
| C38 | 1-136-287-11 | FILM 0.0047 5% 100V |
| C39 | 1-163-037-00 | CERAMIC CHIP 0.022 10% 25V |
| C41 | 1-131-347-00 | TANTALUM 1 10% 35V |
| C44 | 1-130-479-00 | MYLAR 0.0047 5% 50V |
| C46 | 1-131-341-00 | TANTALUM 0.1 10% 35V |
| C49 | 1-124-168-00 | ELECT 100 20% 16V |
| C50 | 1-123-296-00 | ELECT 220 20% 6.3V |
| C53 | 1-163-991-11 | CERAMIC CHIP 0.0022 10% 50V |
| C55 | 1-106-188-00 | MYLAR 0.0047 5% 100V |
| C57 | 1-163-037-00 | CERAMIC CHIP 0.022 10% 25V |
| C59 | 1-131-368-00 | TANTALUM 3.3 10% 16V |

| | | |
|-----|--|--|
| CN1 | 1-564-004-00 1-562-150-11 1-564-026-00 | RECEPTACLE, 5P MALE PLUG HOUSING 5P PLUG CONTACT |
| CN2 | 1-564-002-00 1-562-148-11 1-564-026-00 | RECEPTACLE, 3P MALE PLUG HOUSING 3P PLUG CONTACT |
| CN3 | 1-564-003-00 1-562-149-11 1-564-026-00 | RECEPTACLE, 4P MALE PLUG HOUSING 4P PLUG CONTACT |
| CN4 | 1-564-002-00 1-562-148-11 1-564-026-00 | RECEPTACLE, 3P MALE PLUG HOUSING 3P PLUG CONTACT |
| CN5 | 1-564-006-11 1-562-152-11 1-564-026-00 | RECEPTACLE, 7P MALE PLUG HOUSING 7P PLUG CONTACT |

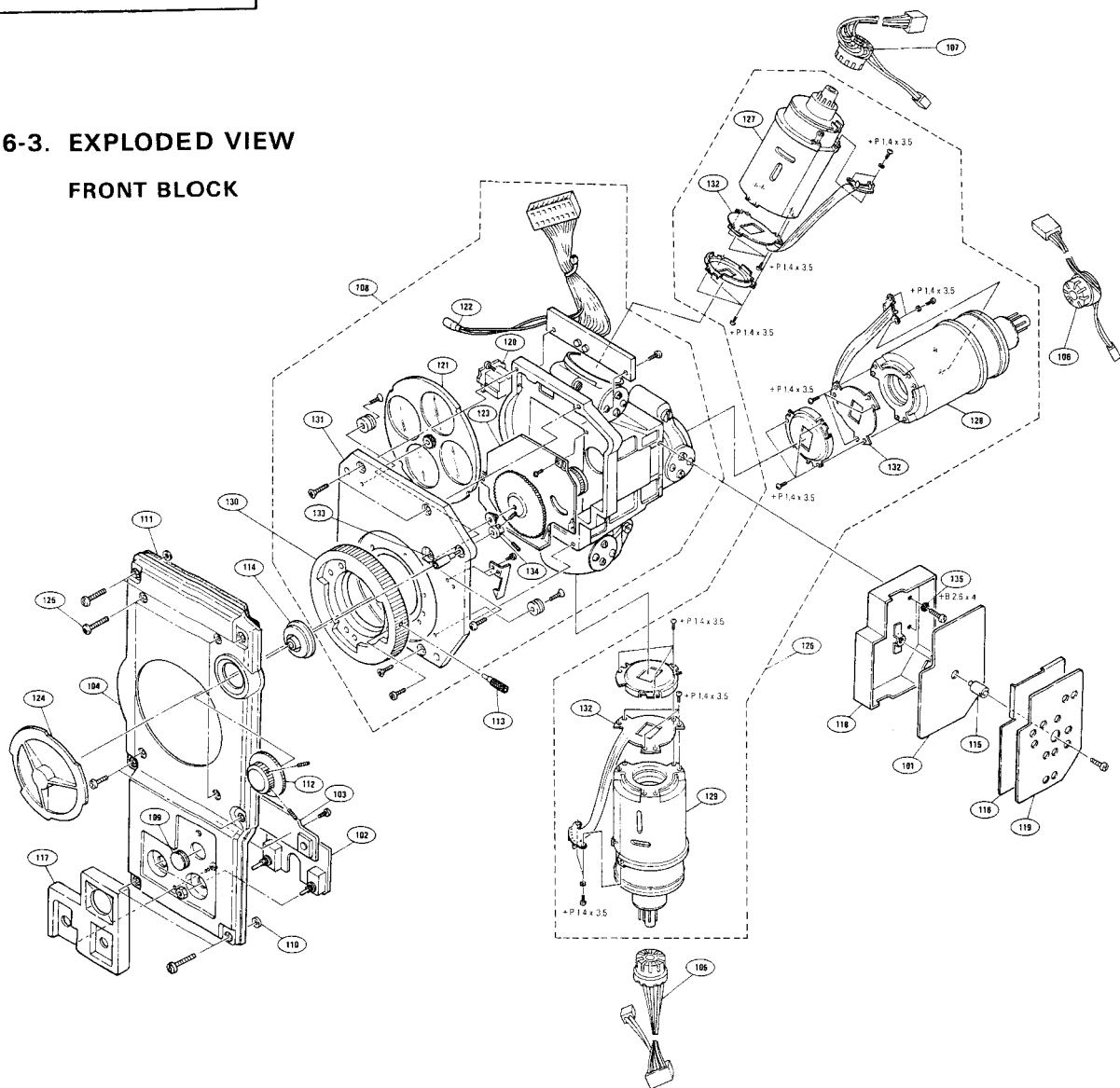
VF-22, VF FRAME

| Ref.No. | Parts No. | Description |
|---------|--------------|----------------------|
| CN6 | 1-564-009-00 | RECEPTACLE, 10P MALE |
| | 1-562-155-11 | PLUG HOUSING 10P |
| | 1-564-026-00 | PLUG CONTACT |
| CN7 | 1-564-001-11 | RECEPTACLE, 2P MALE |
| | 1-562-147-11 | PLUG HOUSING 2P |
| | 1-564-026-00 | PLUG CONTACT |
| CN8 | 1-564-002-00 | RECEPTACLE, 3P MALE |
| | 1-562-148-11 | PLUG HOUSING 3P |
| | 1-564-026-00 | PLUG CONTACT |
| D1 | 8-719-815-55 | 1S1555 |
| D2 | 8-719-815-55 | 1S1555 |
| D3 | 8-719-101-23 | 1SS123 |
| D4 | 8-719-100-05 | 1S2837 |
| D5 | 8-719-101-23 | 1SS123 |
| D7 | 8-719-900-93 | V09C |
| D8 | 8-719-901-19 | V11N |
| D10 | 8-719-900-93 | V09C |
| D11 | 8-719-901-19 | V11N |
| D12 | 8-719-815-55 | 1S1555 |
| D13 | 8-719-101-23 | 1SS123 |
| D14 | 8-719-800-76 | 1SS226 |
| △IC1 | 8-759-300-28 | HA11423MP: HITACHI |
| IC2 | 8-759-801-06 | LB1423N: SANYO |
| L1 | 1-408-409-00 | MICRO 10 |
| L2 | 1-408-406-00 | MICRO 5.6 |
| L3 | 1-459-394-00 | HORIZONTAL LINEARITY |
| L4 | 1-408-080-00 | MICRO 100 |
| Q1 | 8-729-100-66 | 2SC1623 |
| Q2 | 8-729-100-66 | 2SC1623 |
| Q3 | 8-729-100-66 | 2SC1623 |
| Q4 | 8-729-100-76 | 2SA812 |
| Q5 | 8-729-100-76 | 2SA812 |
| Q6 | 8-729-109-44 | 2SK94 |
| Q7 | 8-729-100-76 | 2SA812 |
| Q8 | 8-729-800-32 | 2SC2362K |
| Q9 | 8-729-175-73 | 2SC2757 |
| Q10 | 8-729-800-32 | 2SC2362K |
| Q11 | 8-729-800-28 | 2SA1016K |
| Q12 | 8-729-102-62 | 2SC1623 |
| Q13 | 8-727-587-28 | 2SC756-872 |
| Q14 | 8-729-901-27 | DTC144WK |
| Q15 | 8-729-901-27 | DTC144WK |
| Q17 | 8-729-901-27 | DTC144WK |
| Q18 | 8-729-901-27 | DTC144WK |
| Q19 | 8-729-102-62 | 2SC1623 |
| Q20 | 8-729-102-62 | 2SC1623 |
| Q21 | 8-729-102-62 | 2SC1623 |
| Q22 | 8-729-100-76 | 2SA812 |
| Q23 | 8-729-100-76 | 2SA812 |
| Q24 | 8-729-216-32 | 2SA1163 |
| Q25 | 8-729-216-32 | 2SA1163 |

| Ref.No. | Parts No. | Description |
|------------------|------------------------------|--------------------------------------|
| R33 | 1-215-487-11 | METAL 560K 1% 1/6W |
| R86 | 1-215-479-00 | METAL 270K 1% 1/6W |
| R97 | 1-215-493-00 | METAL 1M 1% 1/6W |
| △RV1 | 1-228-452-00 | METAL 50 |
| RV2 | 1-228-466-00 | METAL 2M |
| RV3 | 1-228-466-00 | METAL 2M |
| RV4 | 1-228-458-00 | METAL 5K |
| RV5 | 1-228-458-00 | METAL 5K |
| RV6 | 1-228-455-00 | METAL 500 |
| RV7 | 1-228-458-00 | METAL 5K |
| RV8 | 1-228-454-00 | METAL 200 |
| RV9 | 1-228-464-00 | METAL 500K |
| RV10 | 1-228-463-00 | METAL 200K |
| RV11 | 1-228-461-00 | METAL 50K |
| S1 | 1-554-371-00 | PUSH |
| T1 | 1-446-106-00 | HEATER PULS |
| △T2 | 1-439-225-21 | FLYBACK |
| VIEWFINDER FRAME | | |
| | 1-451-208-21 | DEFLECTION YOKE |
| △ | 1-464-168-22 | MULTIPLIER |
| | 1-526-540-00 | SOCKET, PICTURE TUBE |
| △ | 1-546-043-11 | PICTURE TUBE 1 1/2-INCH. 40LB4 |
| | 1-934-936-11 | CRT SOCKET WITH HARNESS |
| CN101 | 1-560-704-00 | RECEPTACLE, 20P MALE |
| MIC1 | 8-814-163-00 | MICROPHONE, C-2002A |
| PL101 | 1-518-337-00 1-517-077-00 | LAMP, TALLY 12V 60mA HOLDER, LAMP |
| RV101 | 1-226-735-00 | CARBON 2K "CONTR" |
| RV102 | 1-226-736-00 | CARBON 250K "BRIGHT" |
| RV103 | 1-230-489-11 | CARBON 20K "AUDIO" |
| S102 | 1-554-924-11 | TOGGLE "AUDIO/FILTER" |

FRONT BLOCK

6-3. EXPLODED VIEW FRONT BLOCK



| No. | Parts No. | Description |
|-----|--------------|-------------------------------------|
| 101 | A-7513-057-A | MOUNTED CIRCUIT BOARD "PA-37" |
| 102 | A-7520-131-A | MOUNTED CIRCUIT BOARD "SW-77" |
| 103 | A-7520-132-A | MOUNTED CIRCUIT BOARD "SW-79" |
| 104 | X-3678-608-4 | PANEL ASSY. FRONT |
| 105 | 1-934-743-11 | PICKUP TUBE SOCKET WITH HARNESS (R) |
| 106 | 1-934-744-11 | PICKUP TUBE SOCKET WITH HARNESS (G) |
| 107 | 1-934-745-11 | PICKUP TUBE SOCKET WITH HARNESS (B) |
| 108 | 1-547-133-12 | OPTICAL BLOCK (PY-08) |
| 109 | 3-672-221-00 | PACKING, CONTROL |
| 110 | 3-672-251-00 | RING (M4), O |
| 111 | 3-672-253-11 | RUBBER, CONDUCTIVE |
| 112 | 3-678-602-00 | KNOB, FILTER |
| 113 | 3-678-629-00 | LEVER, MOUNT |
| 114 | 3-678-632-00 | PACKING, KNOB |
| 115 | 3-678-680-00 | SCREW, PA |
| 116 | 3-678-682-00 | LID, SHIELD, PA |
| 117 | 3-680-567-01 | GUARD, SWITCH |
| 118 | 3-678-689-00 | CASE, SHIELD, PA |
| 119 | 3-678-690-02 | LABEL, PA BOARD |

| No. | Parts No. | Description |
|-----|---|-------------------------------|
| 120 | 3-706-975-01 | HOUSING, BIAS LIGHT |
| 121 | 3-706-758-00 | DISC, FILTER |
| 122 | 3-706-759-00 | LAMP, BIAS LIGHT |
| 123 | 3-706-760-00 | SHUTTER |
| 124 | 3-706-761-00 | CAP |
| 125 | 4-882-768-02 | SCREW, BUTTON HEAD (M4 x 8) |
| 126 | OPTIONAL PART: PICKUP TUBE KIT (RGB) RKP3457X | |
| 127 | OPTIONAL PART: PICKUP TUBE (B) RKP3457B | |
| 128 | OPTIONAL PART: PICKUP TUBE (G) RKP3457G | |
| 129 | OPTIONAL PART: PICKUP TUBE (R) RKP3457R | |
| 130 | 3-707-031-01 | RING, MOUNT |
| 131 | 3-707-187-01 | FRONT PANEL |
| 132 | A-7512-058-A | MOUNTED CIRCUIT BOARD "PP-13" |
| 133 | 3-707-274-01 | SHAFT |
| 134 | 3-707-275-01 | GEAR, FLAT |
| 135 | 7-623-421-07 | LW2.6, TYPE B |

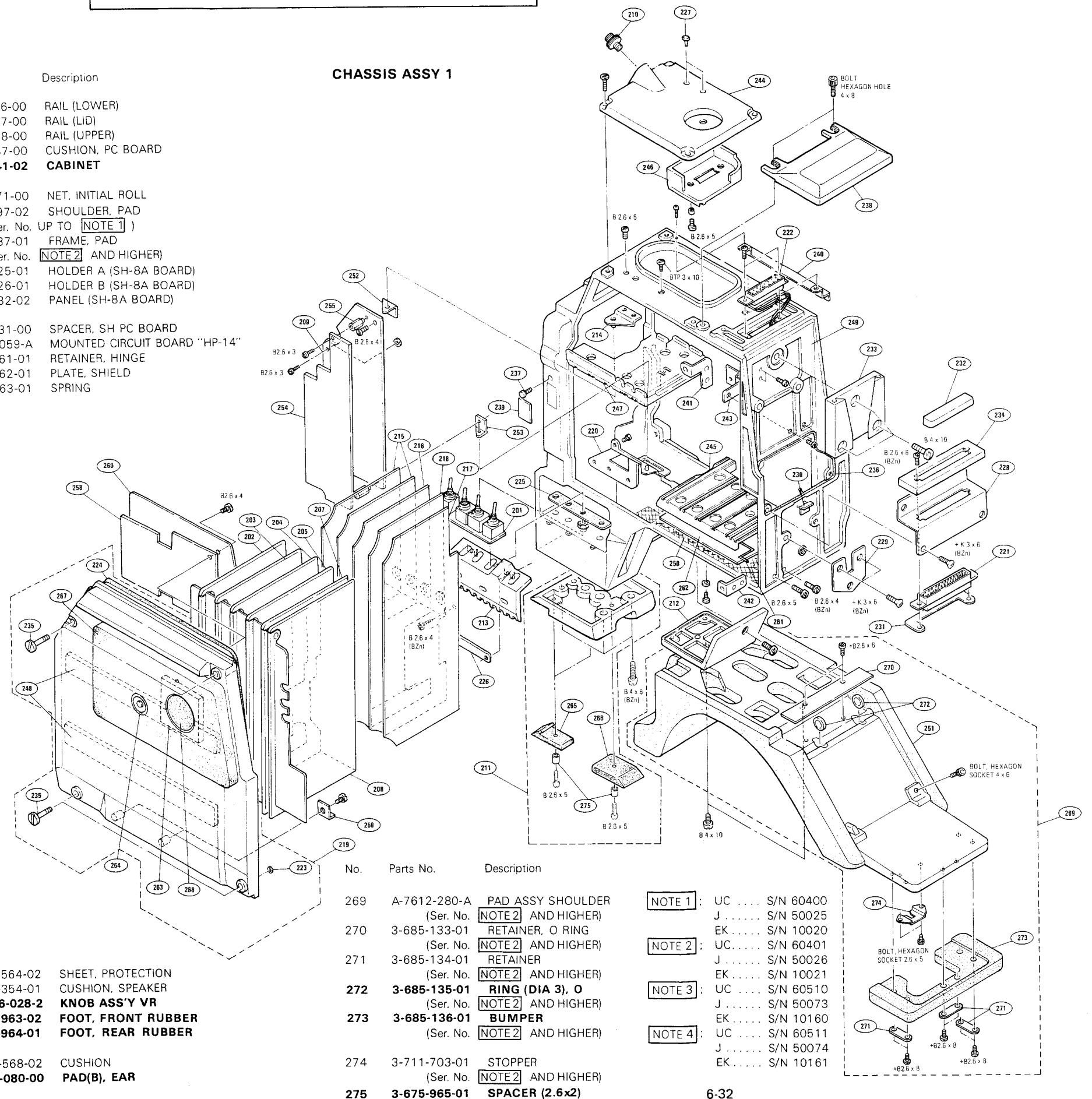
CHASSIS ASSY

CHASSIS ASSY

| No. | Parts No. | Description |
|------------|-------------------------------------|--|
| 201 | A-751 1-886-A | MOUNTED CIRCUIT BOARD "SW-7B" |
| 202 | A-751 3-053-A | MOUNTED CIRCUIT BOARD "VA-23" |
| 203 | A-751 3-054-A | MOUNTED CIRCUIT BOARD "DF-23" |
| 204 | A-751 1-889-B | MOUNTED CIRCUIT BOARD "IE-6" |
| | | (FOR NTSC) |
| | A-751 1-911-B | MOUNTED CIRCUIT BOARD "IE-6P" |
| | | (FOR PAL) |
| 205 | A-751 3-356-A | MOUNTED CIRCUIT BOARD "PR-75" |
| 207 | A-751 3-068-A | MOUNTED CIRCUIT BOARD "EN-33" |
| | | (FOR NTSC) |
| | A-751 3-070-A | MOUNTED CIRCUIT BOARD "EN-33A" |
| | | (FOR PAL) |
| 208 | A-751 3-055-A | MOUNTED CIRCUIT BOARD "PS-41" |
| 209 | A-751 3-064-A | MOUNTED CIRCUIT BOARD "SH-8A" |
| 210 | X-367 2-208-2 | SUSPENSION ASS'Y (B) |
| 211 | X-367 5-905-0 | SHOE, ASS'Y |
| 212 | X-367 8-601-2 | LID (R) ASS'Y |
| 213 | X-367 8-602-0 | PLATE ASS'Y, CONTROL |
| | (Ser. No. UP TO NOTE 3) | |
| | X-367 8-602-2 | PLATE ASS'Y, CONTROL |
| | (Ser. No. NOTE 4 AND HIGHER) | |
| 214 | X-367 8-603-0 | BRACKET, (A) ASS'Y |
| 215 | X-367 8-604-0 | PLATE ASS'Y, SHIELD, IE |
| 216 | X-367 8-605-0 | PLATE ASS'Y, SHIELD, PR |
| 217 | X-367 8-606-0 | PLATE ASS'Y, SHIELD, PW |
| 218 | X-367 8-607-0 | PLATE ASS'Y, SHIELD, EN |
| 219 | X-367 8-609-6 | PLATE (RIGHT) ASS'Y, SIDE |
| 220 | X-367 8-612-0 | BRACKET, (B) ASS'Y |
| 221 | 1-562-112-21 | RECEPTACLE 50P MALE |
| 222 | 1-934-795-11 | 15 PIN CONNECTOR WITH HARNESS (CN102) |
| 223 | 3-672-251-00 | RING (M4), O |
| 224 | 3-672-253-11 | RUBBER, CONDUCTIVE |
| 225 | 3-672-254-00 | SHEET, BRIND |
| 226 | 3-672-266-00 | NUT PLATE |
| 227 | 3-673-018-00 | SCREW, BLIND |
| 228 | 3-675-902-00 | BRACKET (A), CONNECTOR |
| 229 | 3-675-924-00 | STOPPER |
| 230 | 3-675-927-00 | PROTECTOR |
| 231 | 3-675-929-00 | NUT (50P), PLATE |
| 232 | 3-675-930-00 | CAP (50P PIN SIDE), DUST |
| 233 | 3-675-958-02 | SHOE, C |
| 234 | 3-675-976-00 | CUSHION |
| 235 | 3-676-089-32 | SCREW, LID |
| 236 | 3-676-339-11 | RUBBER |
| 237 | 3-676-379-00 | BUSHING (M5) SCREW |
| 238 | 3-685-128-02 | COVER (2), CONNECTOR |
| 239 | 3-678-607-00 | LABEL, FILTER |
| 240 | 3-678-608-02 | BRACKET (A), PC BOARD |
| 241 | 3-678-611-00 | BRACKET (C) |
| 242 | 3-678-612-00 | BRACKET (D) |
| 243 | 3-678-630-00 | REINFORCEMENT (A), HN |
| 244 | 3-678-633-03 | COVER, TOP |

| No. | Parts No. | Description |
|------------|-------------------------------------|-------------------------------|
| 245 | 3-678-636-00 | RAIL (LOWER) |
| 246 | 3-678-637-00 | RAIL (LID) |
| 247 | 3-678-638-00 | RAIL (UPPER) |
| 248 | 3-678-687-00 | CUSHION, PC BOARD |
| 249 | 3-678-641-02 | CABINET |
| 250 | 3-678-671-00 | NET, INITIAL ROLL |
| 251 | 3-678-697-02 | SHOULDER, PAD |
| | (Ser. No. UP TO NOTE 1) | |
| | 3-685-137-01 | FRAME, PAD |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 252 | 3-678-625-01 | HOLDER A (SH-8A BOARD) |
| 253 | 3-678-626-01 | HOLDER B (SH-8A BOARD) |
| 254 | 3-680-532-02 | PANEL (SH-8A BOARD) |
| 255 | 3-680-531-00 | SPACER, SH PC BOARD |
| 258 | A-751 3-059-A | MOUNTED CIRCUIT BOARD "HP-14" |
| 259 | 3-680-561-01 | RETAINER, HINGE |
| 260 | 3-680-562-01 | PLATE, SHIELD |
| 261 | 3-680-563-01 | SPRING |
| 262 | 3-680-564-02 | SHEET, PROTECTION |
| 263 | 3-676-354-01 | CUSHION, SPEAKER |
| 264 | X-367 6-028-2 | KNOB ASS'Y VR |
| 265 | 3-675-963-02 | FOOT, FRONT RUBBER |
| 266 | 3-675-964-01 | FOOT, REAR RUBBER |
| 267 | 3-680-568-02 | CUSHION |
| 268 | 3-676-080-00 | PAD(B), EAR |

CHASSIS ASSY 1

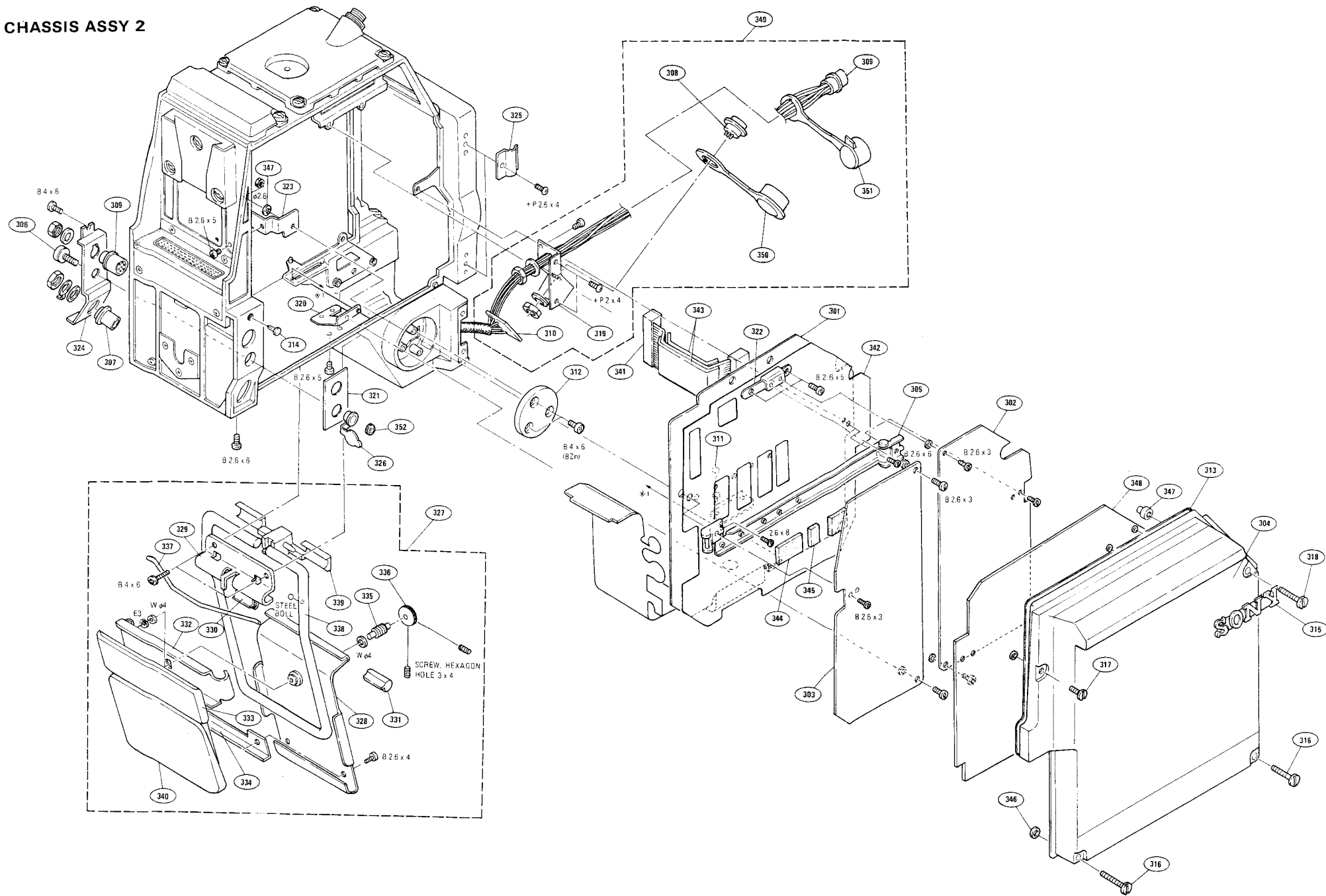


| No. | Parts No. | Description |
|------------|-------------------------------------|------------------------|
| 269 | A-7612-280-A | PAD ASSY SHOULDER |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 270 | 3-685-133-01 | RETAINER, O RING |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 271 | 3-685-134-01 | RETAINER |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 272 | 3-685-135-01 | RING (DIA 3), O |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 273 | 3-685-136-01 | BUMPER |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 274 | 3-711-703-01 | STOPPER |
| | (Ser. No. NOTE 2 AND HIGHER) | |
| 275 | 3-675-965-01 | SPACER (2.6x2) |

| | |
|----------------|-------------------|
| NOTE 1: | UC S/N 60400 |
| | J S/N 50025 |
| | EK S/N 10020 |
| NOTE 2: | UC S/N 60401 |
| | J S/N 50026 |
| | EK S/N 10021 |
| NOTE 3: | UC S/N 60510 |
| | J S/N 50073 |
| | EK S/N 10160 |
| NOTE 4: | UC S/N 60511 |
| | J S/N 50074 |
| | EK S/N 10161 |

CHASSIS ASSY CHASSIS ASSY

CHASSIS ASSY 2



- 350 3-678-769-00 CAP
(UC ... S/N 20281 AND HIGHER)
(J ... S/N 10161 AND HIGHER)
351 3-685-115-01 CAP (6P), DROP PROTECTION
(UC ... S/N 20281 AND HIGHER)
(J ... S/N 10161 AND HIGHER)
352 4-866-017-01 NUT, LOCK

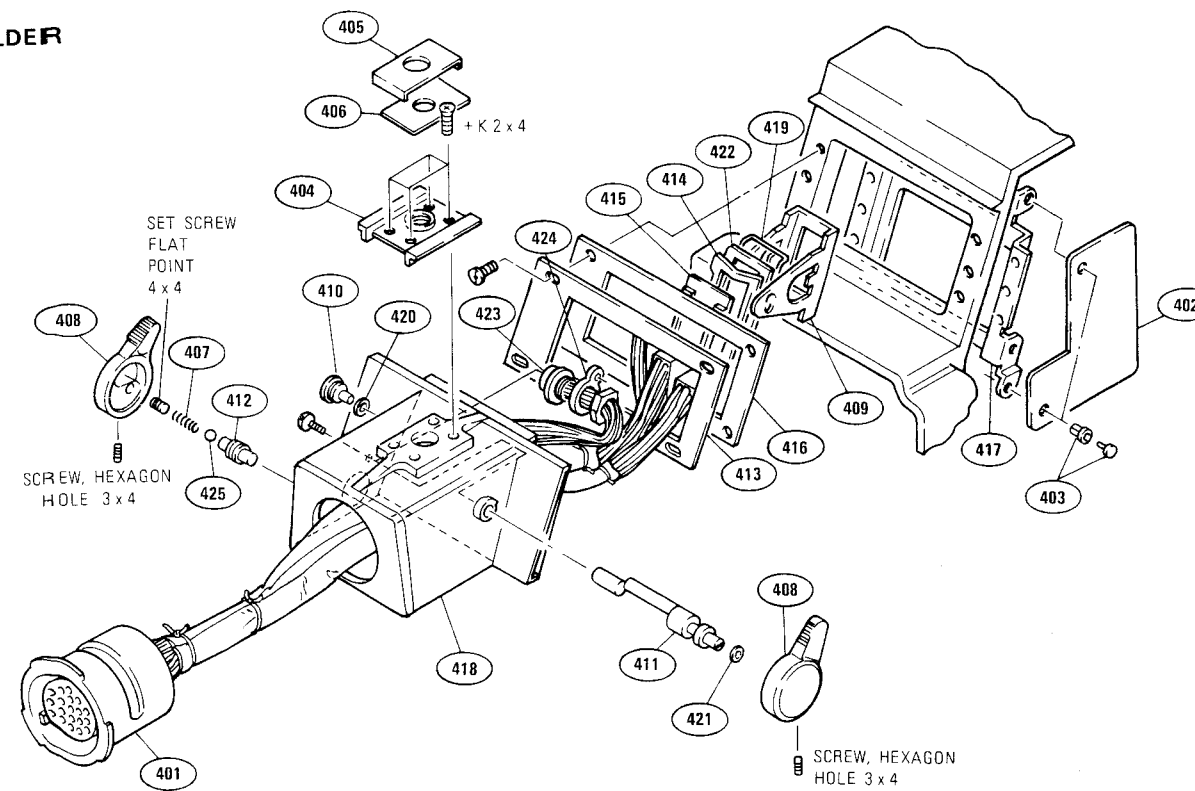
- 340 3-680-520-02 PAD (A)
341 1-556-764-00 50P PLUG WITH HARNESS (SH)
342 1-609-560-14 SHIELD SHEET, HN-25
343 1-609-999-00 SHIELD SHEET, HN-27
344 3-680-522-00 CUSHION, SH BOARD
345 4-871-307-00 RUBBER (B)
346 3-672-251-00 RING (M4), O
347 3-680-529-00 BUSHING, INSULATING
348 3-680-569-01 SHEET, INSULATING
349 1-933-829-13 CONNECTOR ASSY WITH CN-65 BOARD "LENS"

| No. | Parts No. | Description |
|-----|--------------|--|
| 301 | A-7513-056-A | MOUNTED CIRCUIT BOARD "HN-308" |
| 302 | A-7513-046-A | MOUNTED CIRCUIT BOARD "AT-16" |
| 303 | A-7511-895-B | MOUNTED CIRCUIT BOARD "SG-63" (FOR NTSC) |
| | A-7511-913-B | MOUNTED CIRCUIT BOARD "SG-63A" (FOR PAL) |
| 304 | X-3678-610-5 | PLATE (LEFT) ASS'Y, SIDE |
| 305 | X-3678-611-0 | REINFORCEMENT (B) ASS'Y, HN |
| 306 | 1-228-450-00 | WIREWOUND 10K "PEDESTAL" RV1 |
| 307 | 1-561-781-21 | RECEPTACLE, BNC "TEST OUT" CN14 |
| 308 | 1-562-221-00 | RECEPTACLE, 12P FEMALE, "LENS" CN1 |
| 309 | 1-562-222-00 | RECEPTACLE, 6P FEMALE, "LENS" CN103 |
| 310 | 1-608-897-13 | PRINTED CIRCUIT BOARD "CN-65" (UC ... S/N UP TO 20280) (J ... S/N UP TO 10160) |
| | 1-608-897-14 | PRINTED CIRCUIT BOARD "CN-65" (UC ... S/N 20281 AND HIGHER) (J ... S/N 10161 AND HIGHER) |
| 311 | 3-531-576-01 | RIVET |
| 312 | 3-672-233-00 | COVER |
| 313 | 3-672-253-11 | RUBBER, CONDUCTIVE |
| 314 | 3-673-018-00 | SCREW, BLIND |
| 315 | 3-675-901-00 | ENBLEM, SONY |
| 316 | 3-676-089-13 | SCREW, LID (L 22.5) |
| 317 | 3-676-089-22 | SCREW, LID (L 11) |
| 318 | 3-676-089-51 | SCREW, LID (L 26) |
| 319 | 3-678-603-00 | PLATE (LENS), CONNECTOR (UC ... S/N UP TO 20280) (J ... S/N UP TO 10160) |
| | 3-678-603-03 | PLATE (LENS), CONNECTOR (UC ... S/N 20281 AND HIGHER) (J ... S/N 10161 AND HIGHER) |
| 320 | 3-678-604-00 | BRACKET (B), PC BOARD |
| 321 | 3-678-606-00 | LABEL, CONNECTOR |
| 322 | 3-678-609-00 | BRACKET (C), PC BOARD |
| 323 | 3-678-630-00 | REINFORCEMENT (A), HN |
| 324 | 3-678-683-00 | PLATE, CONNECTOR (BNC) |
| 325 | 3-678-684-00 | HOLDER, CABLE |
| 326 | 3-678-685-00 | COVER |
| 327 | A-7612-207-A | PAD ASSY |
| 328 | X-3678-615-0 | SUPPORT ASSY, PAD |
| 329 | 3-680-507-00 | BRACKET (A), STAY |
| 330 | 3-680-508-00 | PAD (A) STOPPER |
| 331 | 3-680-509-00 | PAD (B), STOPPER |
| 332 | 3-680-510-00 | BRACKET, STAY |
| 333 | 3-680-511-02 | PAD(B) |
| 334 | 3-680-512-00 | CLAMP, STAY |
| 335 | 3-680-515-00 | SCREW, STAY ADJUST |
| 336 | 3-680-516-00 | KNOB, ADJUST |
| 337 | 3-680-517-00 | SPRING |
| 338 | 3-680-518-00 | STAY, PAD |
| 339 | 3-680-519-00 | SUPPORT, STAY |

VF HOLDER

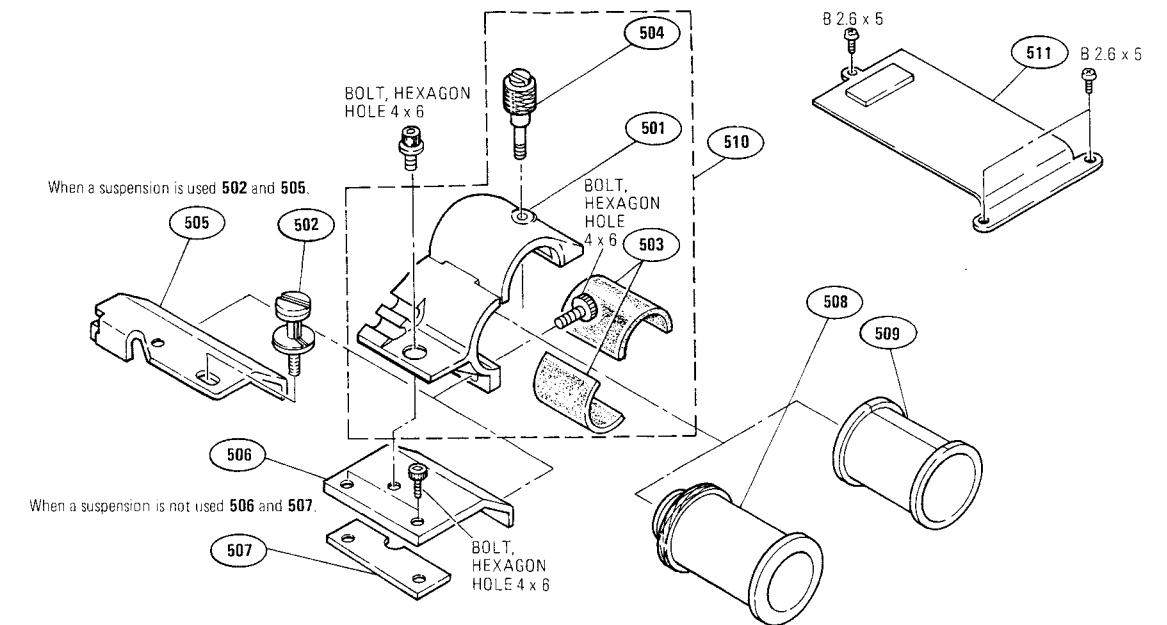
MIC HOLDER

VF HOLDER



| No. | Parts No. | Description | No. | Parts No. | Description |
|-----|------------------------------|---|-----|--------------|--------------------------------|
| 401 | 1-561-812-00 1-934-868-11 | CONNECTOR, 20P FEMALE (CN101) VF 20P CONNECTOR WITH HARNNES (CN101) | 416 | 3-678-656-00 | PLATE, ORNAMENTAL, SLIDE BLOCK |
| 402 | A-7520-172-A | MOUNTED CIRCUIT BOARD "CN-9" | 417 | 3-678-657-00 | BRACKET (E) |
| 403 | 3-531-576-00 | RIVET | 418 | 3-678-658-05 | HOLDER, VF |
| 404 | 3-657-700-00 | BRACKET, ACCESSORY | 419 | 3-678-670-00 | SPRING |
| 405 | 2-277-468-01 | PLATE, ORNAMENTAL, CAMERA | 420 | 3-701-443-11 | WASHER |
| 406 | 3-672-213-00 | SHEET, ADHESIVE | 421 | 3-701-444-21 | WASHER, 6 |
| 407 | 3-672-260-00 | SPRING, COMPRESSION | 422 | 3-680-521-00 | SPACER, (C) |
| 408 | 3-673-046-11 | LEVER, LOCK | 423 | 1-562-221-21 | RECEPTACLE, 12P FEMALE (CN104) |
| 409 | 3-678-646-00 | CLAMP | 424 | 3-680-560-01 | BRACKET, CONNECTOR |
| 410 | 3-680-566-01 | SCREW (A), CLAMP | 425 | 7-671-113-11 | BALL, STEEL 3.5 |
| 411 | 3-678-649-02 | SHAFT, CLAMP | | | |
| 412 | 3-678-650-00 | SCREW (B), STOPPER | | | |
| 413 | 3-678-651-00 | BASE, SLIDE | | | |
| 414 | 3-678-654-00 | SUPPORT, SLIDE | | | |
| 415 | 3-678-655-00 | SPACER (B), SLIDE | | | |

MIC HOLDER

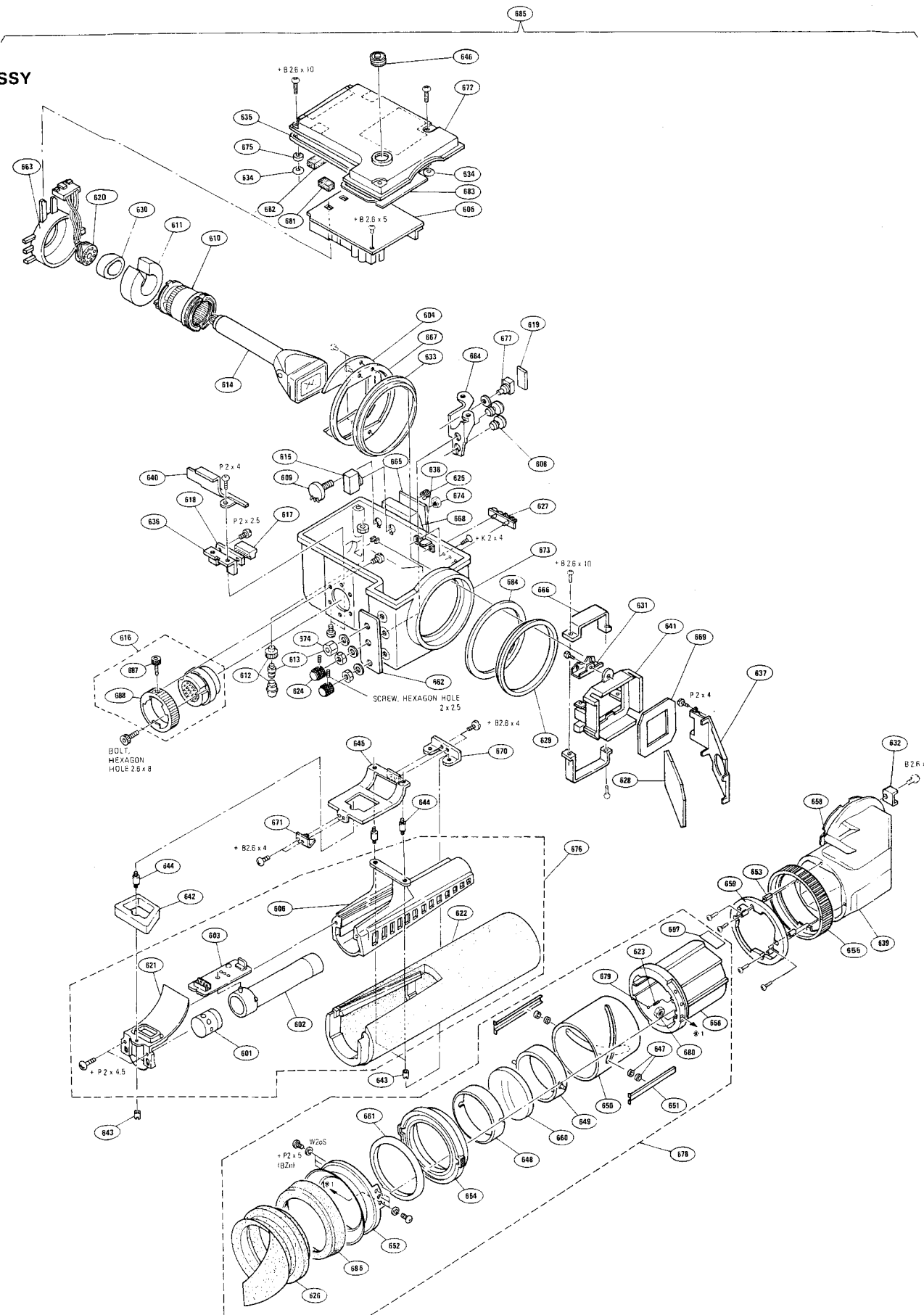


| No. | Parts No. | Description |
|-----|--------------|---|
| 501 | X-3664-502-3 | HOLDER ASSY, MICROPHONE |
| 502 | X-3672-208-2 | SUSPENSION ASSY (B) (FOR BVW-30/30P) |
| 503 | 3-657-643-04 | CUSHION, MICROPHONE |
| 504 | 3-657-657-00 | SCREW (M5) |
| 505 | 3-680-578-01 | PLATE (A), HOLDER, MICROPHONE (BVW-30/30P) |
| 506 | 3-680-579-01 | PLATE (B), HOLDER, MICROPHONE (BVP-30/30P) |
| 507 | 3-680-580-01 | SPACER SPACER (FOR BVP-30/30P) |
| 508 | 3-680-581-01 | HOLDER (A), MICROPHONE (FOR CRS-3P GRADE SUSPENSION) |
| 509 | 3-680-582-01 | HOLDER (B), MICROPHONE (FOR ϕ 19 MICROPHONE) |
| 510 | A-7401-113-B | HOLDER ASSY, MICROPHONE |
| 511 | 3-680-577-01 | COVER, MICROPHONE BLOCK |

VF ASSY

VF ASSY

VF ASSY



6-37

| No. | Parts No. | Description |
|-----|--------------|-----------------------------------|
| 601 | A-4511-007-A | UNIT ASSY |
| 602 | A-4511-008-A | TUBE ASSY PHASE |
| 603 | A-4518-180-A | MOUNTED CIRCUIT BOARD "MIC AMP" |
| 604 | A-7513-066-A | MOUNTED CIRCUIT BOARD "LP-28" |
| 605 | A-7513-067-A | MOUNTED CIRCUIT BOARD "VF-22" |
| 606 | X-2532-701-0 | CASE ASSY |
| 607 | 1-226-735-00 | CARBON 2K (RV101) |
| 608 | 1-226-736-00 | CARBON 250K (RV102) |
| 609 | 1-230-489-11 | CARBON 20K (RV103) |
| 610 | 1-451-208-21 | DEFLECTION YOKE |
| 611 | 1-464-168-22 | MULTIPLIER |
| 612 | 1-517-077-00 | HOLDER, LAMP |
| 613 | 1-518-337-00 | LAMP, TALLY |
| 614 | 1-546-043-11 | PICTURE TUBE 1 1/2-INCH 40LB4 |
| 615 | 1-554-924-11 | SWITCH, TOGGLE (S102) |
| 616 | 1-560-704-00 | RECEPTACLE, 20P MALE (CN103) |
| 617 | 1-561-816-00 | RECEPTACLE, 6P FEMALE (CN1) |
| 618 | 1-606-127-00 | PRINTED CIRCUIT BOARD "MC-19" |
| 619 | 1-612-778-11 | PRINTED CIRCUIT BOARD "SW-80" |
| 620 | 1-934-936-11 | SOCKET, PICTURE TUBE WITH HARNESS |
| 621 | 2-532-711-00 | REAR, COVER MICROPHONE |
| 622 | 2-532-712-00 | WINDSCREEN |
| 623 | 3-302-492-00 | SPRING, COMPRESSION |
| 624 | 3-657-627-00 | KNOB(2) |
| 625 | 3-657-627-11 | KNOB(2) |
| 626 | 3-657-771-02 | EYE CUP(2) |
| 627 | 3-668-914-00 | EMBLEM, SONY |
| 628 | 3-672-201-00 | MIRROR |
| 629 | 3-672-241-00 | RING(B), SLEEVE |
| 630 | 3-672-244-00 | SPACER, MULTI |
| 631 | 3-685-129-01 | SPRING(N), LEAF, VF |
| 632 | 3-672-246-00 | STOPPER |
| 633 | 3-672-247-00 | RING(A), SLEEVE |
| 634 | 3-672-250-00 | RING(M2.6), O |
| 635 | 3-672-253-11 | RUBBER, CONDUCTIVE |
| 636 | 3-672-283-00 | BRACKET, MICROPHONE CHASSIS |
| 637 | 3-672-287-00 | HOLDER, MIRROR |
| 638 | 3-672-288-00 | BRACKET(B) |
| 639 | 3-672-294-12 | TUBE, VF |
| 640 | 3-673-028-00 | PLATE, VF SHIELD |
| 641 | 3-680-599-03 | SUPPORT(C), CRT |
| 642 | 3-675-985-00 | CUSHION, MICROPHONE |
| 643 | 3-675-986-00 | SCREW |
| 644 | 3-675-987-00 | RUBBER, VIBRATION PROOF |
| 645 | 3-675-999-00 | RETAINER, MICROPHONE |
| 646 | 3-676-244-00 | COVER, SWITCH |
| 647 | 3-678-659-00 | ROLLER |
| 648 | 3-678-660-00 | SUPPORT(A), LENS |
| 649 | 3-678-661-00 | HOLDER(B), LENS |
| 650 | 3-678-662-00 | TUBE, SLEEVE |

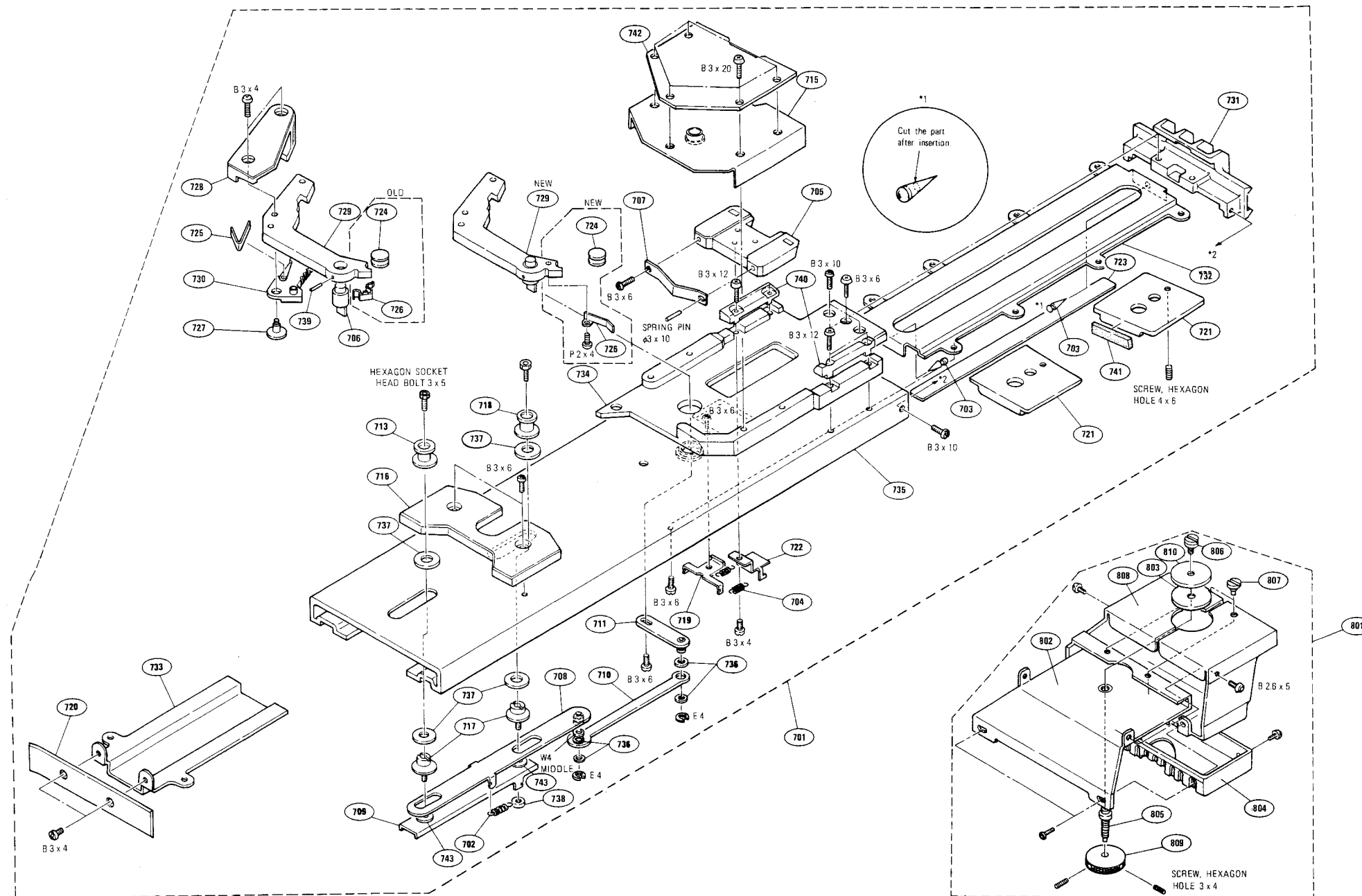
| No. | Parts No. | Description |
|-----|--------------|--------------------------------------|
| 651 | 3-678-663-00 | GUIDE, ROLLER |
| 652 | 3-678-664-00 | HOLDER, EYE CUP |
| 653 | 3-657-841-11 | SPACER (DIA 2X4) |
| 654 | 3-678-667-02 | RING, DIOPTER |
| 655 | 3-685-119-01 | RING, HOLD |
| 656 | 3-678-669-00 | HOLDER, DIOPTER RING |
| 657 | 3-680-413-00 | SEAL, RING HOLDER |
| 658 | 3-680-414-00 | SEAL, VF TUBE |
| 659 | 3-680-416-00 | RING, FIXED |
| 660 | 3-680-417-00 | LENS(B), VF |
| 661 | 3-680-418-01 | RING, O (RUBBER) |
| 662 | 3-680-590-01 | NAME PLATE(B) (CONTROL) |
| 663 | 3-680-591-01 | SUPPORT(B), CRT |
| 664 | 3-680-592-01 | BRACKET(A)(VF) |
| 665 | 3-680-593-01 | NAME PLATE(A)(CONTROL) |
| 666 | 3-680-594-01 | CLAMP, CRT |
| 667 | 3-680-595-01 | SUPPORT, ROTARY |
| 668 | 3-680-596-01 | GUARD, SWITCH |
| 669 | 3-680-598-00 | PLATE, DISPLAY |
| 670 | 3-681-701-00 | RETAINER(B), MICROPHONE |
| 671 | 3-681-702-00 | RETAINER(A), MICROPHONE |
| 672 | 3-685-101-12 | COVER, VF |
| 673 | 3-685-102-03 | VF(MAIN) |
| 674 | 3-685-104-01 | NUT, CONTROL |
| 675 | 3-701-438-11 | WASHER, 2.5 |
| 676 | 8-814-163-00 | MICROPHONE C-2002A (WITH WINDSCREEN) |
| 677 | 1-554-922-11 | SWITCH, TOGGLE (S101) |
| 678 | A-7612-223-A | LENS ASSY, CONTACT |
| 679 | 7-671-154-01 | STENLESS BALL 2 |
| 680 | 7-622-205-05 | NUT, M2 TYPE2 |
| 681 | 9-911-840-XX | RUBBER (B) |
| 682 | 3-673-055-01 | CUSHION |
| 683 | 3-685-116-01 | INSULATOR, VF |
| 684 | 3-685-118-01 | SPACER, RING |
| | | (UC ... S/N 20281 TO 60250) |
| | | (J ... S/N 10161 TO 10210) |
| 685 | A-7403-091-A | VF ASSY |
| 686 | 3-713-129-01 | PACKING, RING |
| | | (UC ... S/N 60046 AND HIGHER) |
| | | (J ... S/N 50046 AND HIGHER) |
| | | (EK ... S/N 10056 AND HIGHER) |
| 687 | 9-991-751-01 | SCREW, LOCK |
| 688 | 9-991-752-01 | RING, LOCK |

6-38

BVP-30/AP

TRIPOD ADAPTOR VTR BRACKET

TRIPOD ADAPTOR VTR BRACKET



| No. | Parts No. | Description |
|-----|--------------|--|
| 701 | A-7408-015-F | ADAPTOR ASS'Y TRIPOD |
| 702 | 3-648-211-00 | SPRING, TENSION |
| 703 | 3-644-002-00 | CUSHION, HANDLE |
| 704 | 3-492-235-XX | SPRING, TENSION |
| 705 | 3-676-392-00 | BRACE, SLIDE |
| 706 | 3-676-393-00 | SHAFT, ROTARY (UC ... S/N UP TO 60370) (J ... S/N UP TO 50005) |
| 707 | 3-676-394-00 | SPRING, LEAF |
| 708 | X-3676-101-1 | PLATE (A) ASSY, SLIDE |
| 709 | X-3676-102-1 | PLATE (B) ASSY, SLIDE |
| 710 | 3-676-397-02 | JOINT |
| 711 | X-3676-104-1 | PLATE ASSY, LOTARY |
| 713 | 3-678-701-00 | PIN (B), VTR |
| 715 | X-3676-100-1 | LID ASSY, UPPER |
| 716 | 3-678-704-00 | SPACER |
| 717 | 3-678-705-00 | SHAFT, VTR PIN RETAINER |
| 718 | 3-678-706-00 | PIN (A), VTR |
| 719 | 3-678-707-00 | PLATE (B), FIXED, SPRING |
| 720 | 3-678-708-00 | CAP |
| 721 | 3-678-709-01 | BRACE, FITTING |
| 722 | 3-687-137-01 | PLATE (A), FIXED, SPRING |
| 723 | 3-678-711-02 | SHEET, REAR PLATE |
| 724 | 3-678-712-00 | ROLLER (UC ... S/N UP TO 60115) (J ... S/N UP TO 10210) |
| | 3-685-122-01 | ROLLER (UC ... S/N 60116 AND HIGHER) (J ... S/N 10211 AND HIGHER) |
| 725 | 3-678-713-00 | SPRING (L), LEAF |
| 726 | 3-678-714-00 | SPRING (UC ... S/N UP TO 60115) (J ... S/N UP TO 10210) |
| | 3-685-121-01 | SPRING, LEAF (UC ... S/N 60116 AND HIGHER) (J ... S/N 10211 AND HIGHER) |
| 727 | 3-678-715-00 | PIN, TRIGGER |
| 728 | 3-678-716-00 | KNOB, LEVER |
| 729 | 3-678-717-00 | LEVER, CLAMP (UC ... S/N UP TO 60370) (J ... S/N UP TO 50005) |
| | X-3678-636-1 | LEVER ASSY, CLAMP (UC ... S/N 60371 AND HIGHER) (J ... S/N 50006 AND HIGHER) |
| 730 | 3-678-718-00 | LEVER, LOCK |
| 731 | 3-678-719-00 | BRACE, RETAINER |
| 732 | 3-678-720-02 | PLATE (A), REAR |
| 733 | 3-678-721-02 | PLATE (B), REAR |
| 734 | 3-678-722-02 | SPACER, T SHOE |
| 735 | X-3676-103-1 | TABLE ASSY, ATTACHMENT |

| No. | Parts No. | Description |
|-----|--------------|---|
| 742 | 3-687-124-01 | RETAINER (UC ... S/N 20251 AND HIGHER) (J ... S/N 10131 AND HIGHER) |
| 743 | 3-701-446-11 | WASHER, POLY 8MM DIA (0.25T) |
| 801 | A-7612-206-A | VTR BRACKET ASSY, TRIPOD |
| 802 | X-3678-614-0 | COVER (B) ASSY, BRACKET |
| 803 | 3-678-698-00 | DISK |
| 804 | 3-678-699-00 | COVER (A), BRACKET |
| 805 | 3-680-502-00 | SCREW, BRACKET |
| 806 | 3-680-503-00 | SCREW, STOPPER |
| 807 | 3-680-504-00 | PIN, CLAMP |
| 808 | 3-680-506-00 | BRACKET (A) |
| 809 | 3-680-516-00 | KNOB, ADJUST |
| 810 | 3-680-534-00 | WASHER (6.1x20) |

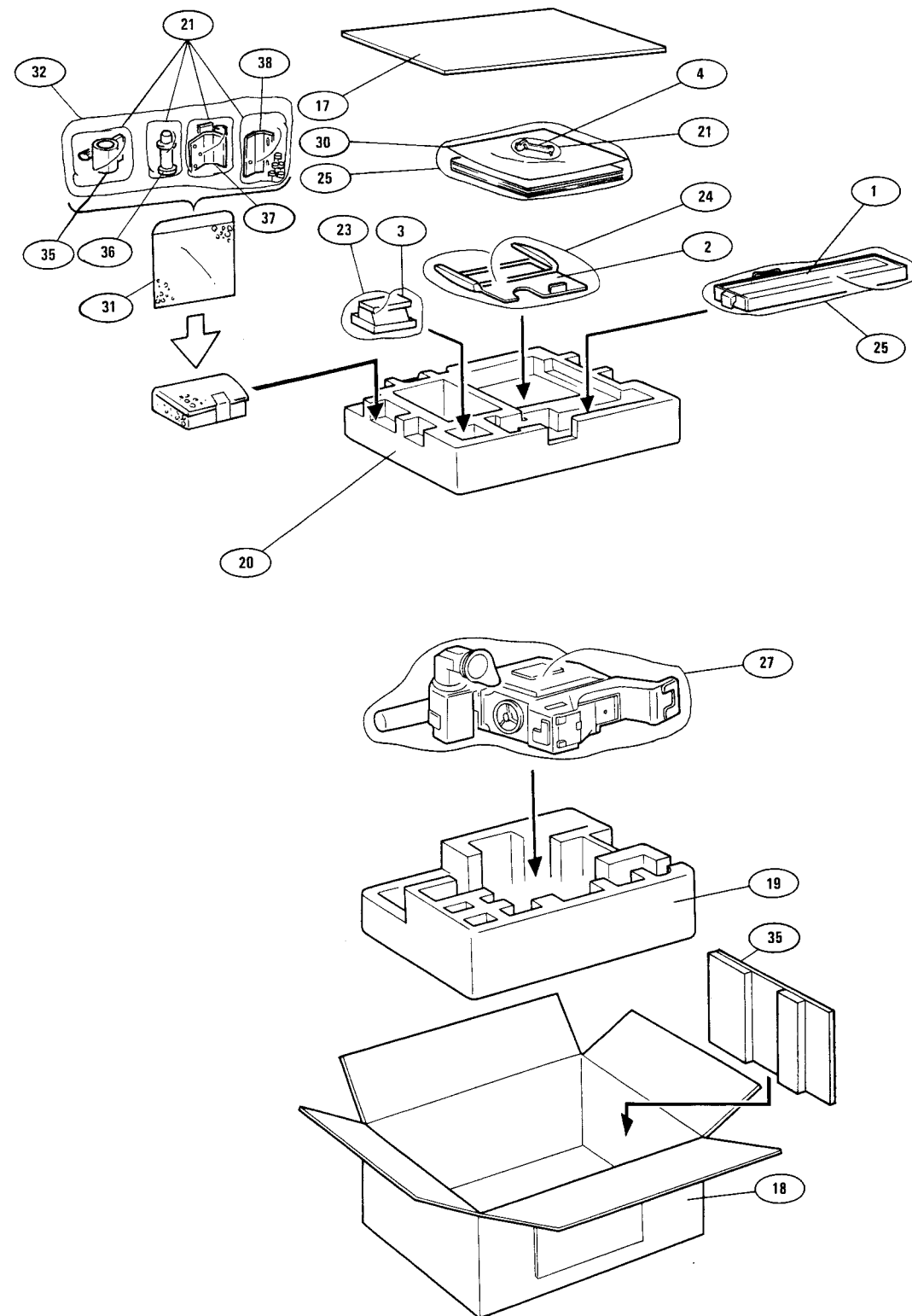
| No. | Parts No. | Description |
|-----|--------------|---|
| 736 | 3-701-441-11 | WASHER, 4 |
| 737 | 3-701-446-01 | WASHER, POLY 8MM DIA (0.13T) (UC ... S/N 40001 AND HIGHER) (J ... S/N 10211 AND HIGHER) |
| 739 | 3-703-357-56 | PIN, PARALLEL (UC ... S/N UP TO 60370) (J ... S/N UP TO 50005) |
| 740 | 3-678-783-00 | GUIDE, T SHOE |
| 741 | 3-687-123-01 | CUSHION (UC ... S/N 20251 AND HIGHER) (J ... S/N 10131 AND HIGHER) |

PACKING MATERIAL

PACKING MATERIAL

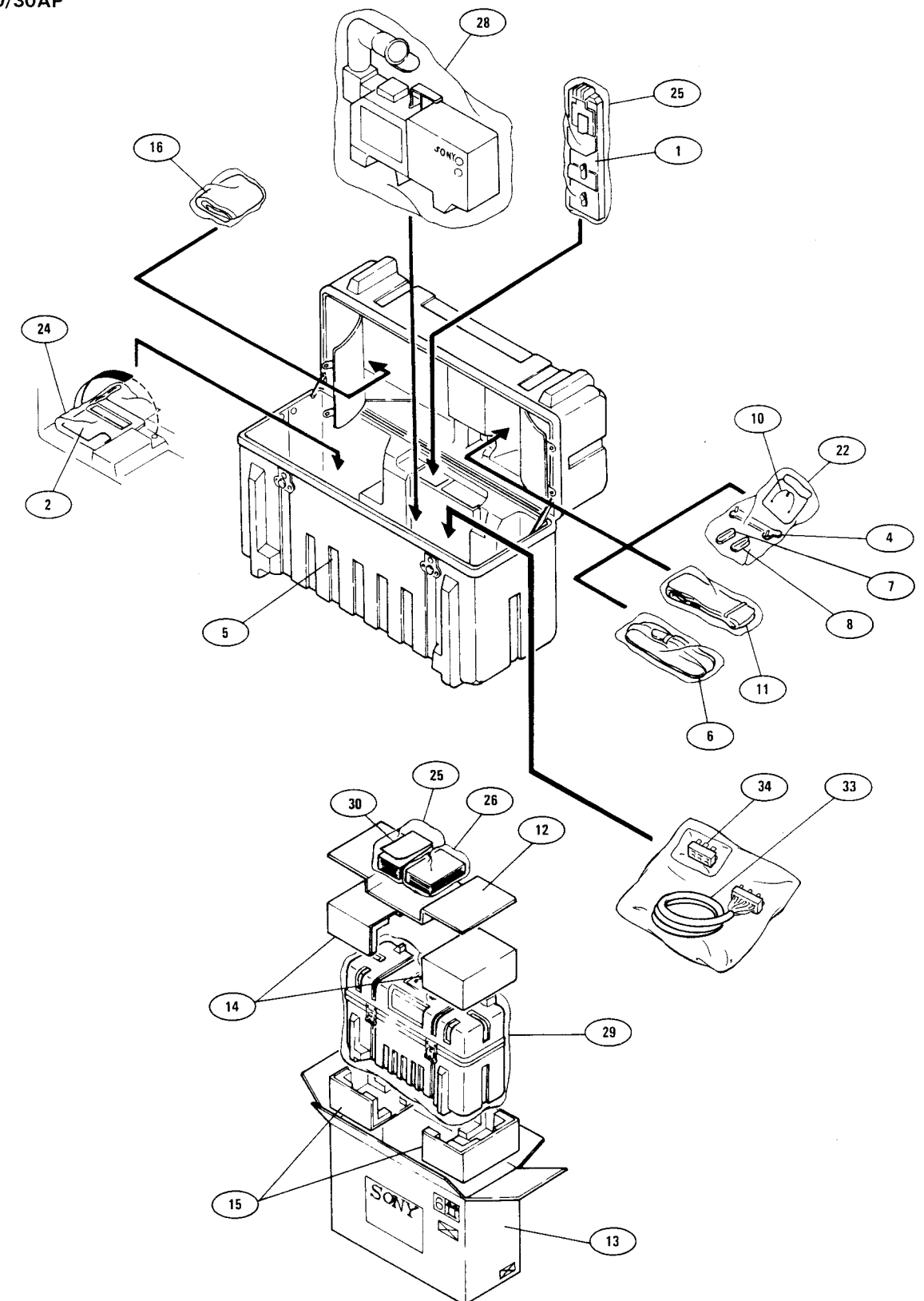
6-4. PACKING MATERIAL AND ACCESSORY (SUPPLIED) BVP-30/30AP

BVP-30/30AP



6-41

BVW-30/30AP



6-42

BVP-30/AP

PACKING, FIXTURE

No. Parts No. Description

1 STANDARD PRODUCTS

2 **A-7511-898-A** **BOARD EXTENDER "EX-24"**

3 A-7612-206-A VTR BRACKET

4 **X-3678-613-0** **BOARD EXTRACTOR**

5 X-3680-401-0 CARRYING CASE

A-7408-023-A **LOCK ASSY**

(without screw)

6 **3-685-111-01** **STRAP (N), SHOULDER**

7 **3-676-269-00** **CAP, DUST (FOR VTR 50P)**

8 **3-675-930-00** **CAP, DUST (FOR CAMERA 50P)**

10 3-676-372-00 STRAP, BATTERY LID

11 3-678-732-00 BELT, CARRYING CASE

12 3-680-408-00 BOARD, TOP

13 3-680-409-00 CARTON, INDIVIDUAL

14 3-680-410-00 CUSHION, UPPER 2PCS

15 3-680-411-00 CUSHION, LOWER 2PCS

16 3-680-412-02 COVER, RAIN

17 3-680-523-00 SPACER

18 3-680-524-02 CARTON, INDIVIDUAL

19 3-680-570-02 CUSHION, LOWER

20 3-680-571-02 CUSHION, UPPER

21 **3-701-619-00** **BAG, POLY (FOR BOARD EXTRACTOR)**

22 **3-701-621-00** **BAG, POLY (FOR CAP, STRAP, EXTRACTOR)**

23 **3-701-622-00** **BAG, POLY (FOR VTR BRACKET)**

24 **3-701-625-00** **BAG, POLY (FOR BOARD EXTENDER)**

25 **3-701-632-00** **BAG, POLY (FOR BVP-30/30AP OM MANUAL, TRIPOD ADAPTOR)**

26 **3-701-632-00** **BAG, POLY (FOR BVV-1 OM MANUAL)**

27 **3-701-643-00** **BAG, POLY (FOR BVP-30/30AP)**

28 **3-701-646-00** **BAG, POLY (FOR BVW-30/30AP)**

29 **4-332-293-00** **BAG, POLY (FOR CARRYING CASE)**

30 **3-680-660-00** **AUTO CENTERING CHART**

31 **3-685-105-00** **BAG, PROTECTION FOR HOLDER ASSY, MICROPHONE**

32 **HOLDER ASSY, MICROPHONE**
(REFER TO EXPLODED VIEW PAGE No. 6-36)

33 **1-557-660-11** **6PIN TIME CODE CABLE**

34 **1-562-642-11** **6PIN CONNECTOR FEMALE**

35 3-713-136-01 PLATE, SIDE

(UC ... S/N 60426 AND HIGHER)
(J ... S/N 50051 AND HIGHER)
(EK ... S/N 10056 AND HIGHER)

Ref. No. Parts No. Description

6-5. FIXTURE

A-7511-898-A **BOARD EXTENDER "EX-24"**

X-3678-613-0 **BOARD EXTRACTOR**

J-6029-140-A PATTERN BOX, PTB-500 (90 to 240Vac)

J-6029-140-2 DIFFUSION PLATE

J-6029-140-3 LAMP

J-6029-140-4 FILTER

J-6029-140-5 SWITCH, POWER

J-6029-140-6 SOCKET, LAMP

J-6026-100-A **RESOLUTION CHART**

J-6026-130-A **GRAY SCALE CHART**

J-6021-890-A **BALL PATTERN CHART**

J-6026-120-A **REGISTRATION CHART**

J-6026-110-A **MULTI BURST CHART**

J-6196-080-A **DC POWER CORD (BW-608)**